

THE READER

A REVIEW OF LITERATURE, SCIENCE, AND ART.

No. 198, Vol. VII.

Saturday, October 13, 1866.

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Meteyard's Life of Wedgwood.
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Positivist History.
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THE PUBLISHING SEASON.
CORRESPONDENCE:—
Celts in Ireland.—O.
PUBLICATIONS OF THE WEEK.
SCIENCE:—
The British Association.
MISCELLANEA.

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THE READER.

SATURDAY, SEPTEMBER 13, 1866.

METEYARD'S LIFE OF WEDGWOOD.

Life of Josiah Wedgwood. From his Private Correspondence and Family Papers in the Possession of Joseph Mayer, Esq., F. Wedgwood, Esq., C. Darwin, Esq., Miss Wedgwood, and other Original Sources. With an Introductory Sketch of the Art of Pottery in England. By Eliza Meteyard. With numerous Illustrations. In 2 vols. Vol. 2, 8vo, pp. xxiv.—643. 21s. (Hurst and Blackett.)

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Stories of the successful struggle between mind and matter are always interesting; and, no doubt, owing to the reflected self-praise which we feel entitled to bestow when the stubborn enemy—be it wind, water, earth, or iron—is vanquished, and the reader can call out "Bravo, our side." And, perhaps, of these contests there are none more agreeable to contemplate than the Potter's. To appreciate fully, or even partially, the difficulties encountered by Watt or Stephenson, to follow with something more than gaping wonder the deep sea telegraph, or the gun and target question, requires a considerable amount of technical knowledge. But, in the potter's art, the simplicity of material, and the obvious beauty of result, give an easy and pleasing interest to the struggle. One can scarce fail, when a potter's life is spoken of, to think at once of Bernard Palissy. Wedgwood, however, was destined to a far easier lot than befel the gallant French champion of ceramic beauty; and in this volume the reader will find him proceeding from one step of prosperity to another yet higher level, with no more trouble than occasional pirates of his designs and material; (and even with these he could remain on terms of outward courtesy) till the appointed time came, when, like a sheaf of corn full ripe, he yielded to the universal mower, leaving a sorrowing family and an unblemished fame.

So determined, however, were the efforts made by foreign nations to discover the trade secrets to which in great part the admitted superiority of Wedgwood's products was ascribed, that courtesy was perforce exchanged for suspicion; and even the severest watchfulness did not always prove efficient protection. A striking instance of this is to be found in the following:—

The searcher at the Custom House, London, came upon five large chests of suspicious character. Upon being opened they were found to contain tools and raw materials in different stages of manufacture. With these was included a large bound manuscript book, filled with drawings and plans of different machines and engines, with a

full account of each written in the Danish or German language. One chest had special reference to the manufacture of pottery, and contained, not only ware in every stage of preparation, but the substances employed for glazing and colouring it. The owner was found to be a Dane named Ljungberg, who had been in this country thirteen or fourteen years, and all that time had been employed in obtaining every available manufacturing secret he could. He had been in the potteries some weeks, but detected in the fact of bribing workmen to procure him drawings of the kilns, &c., he suddenly decamped for fear of being arrested.

What dismay must have filled the heart of this patient spider when his web of 18 or 14 years labour was rudely menaced by a Customs broom!

Of the services rendered to English art by Wedgwood there can be no doubt, and of their value it is not easy to form too high an estimate. Few or none will be disposed to deny that much of the improvement in our ceramic products, during the last hundred years, had its origin in the workshops of Etruria. Wedgwood's skilful and costly experiments as to body, placed knowledge at the disposal of all his contemporaries; his never-ceasing aspirations after beauty of form could not but excite their emulation. It is, therefore, a somewhat ungracious task to place a limit upon the amount of gratitude which we fully admit to be due; and yet in some respects this appears needful. Of the enormous prices now paid for old Wedgwood ware it is not our purpose to speak: these sums, as in the similar and more conspicuous instance of the "Henri Deux" ware, must be taken to represent rather the riches of the purchaser than his estimate of the artistic value of his purchase. But if, because we unhesitatingly admit the graceful forms of the Wedgwood vases and medallions, and the refinement visible in their ornament, we are therefore called on to avouch these to be the best and purest producible specimens of pottery, we must demur. The coldly chaste forms of revived classicism, the somewhat meagre festoons, the unimpeachable but uninteresting mouldings of that time scarcely satisfy the requirements of modern taste; and even as the architecture of Chambers, the brothers Adam, and their contemporaries has had to endure an invasion of the rich and varied buildings which have for ever dissociated the terms "Gothic" and "barbarous," so the Wedgwood ware must submit to the rivalry of objects influenced by reminiscences of Italian maiolica. Indeed, without bringing into question the respective merits of two schools of art so diametrically opposite as to leave small common space for comparison it may be well to observe that Wedgwood ware, judged on its own merits alone, at times fails to satisfy the fair demands of taste. This is particularly observable in the medallions, where the figures, graceful in themselves, seem to have been designed, and doubtless were so, with no special adaptation to the space they occupy. They are merely groups, seated by chance within a certain boundary, and the severance of connection with their surroundings, thereby produced, is very unfavourable to the harmonious unity of feeling which a perfect work of art should create in the spectator's mind. In this particular the Greek gems, the spaces of the Sistine ceiling, nay, the very spandrels of our then despised Gothic churches, might have read wholesome lessons to the designers of the Georgian age. An important, and what, but for the good sense and feeling of Wedgwood, might have been a painful discussion, took place between Wedgwood and his partner Bentley. The terms of their partnership rendered it necessary to decide what should be considered *useful* ware, what *ornamental*; and this obviously difficult point is decided by Wedgwood in a very simple, practical, and friendly spirit. That the great potter had a proper sense of the dignity of his art, and not more than sufficient mercantile judgment as to the prices of his artistic products, will be seen by the following letter:—

Wedgwood to Bentley,

September 1, 1778.

A little later Wedgwood says further in relation to price:—"The white jasper muses and tablets of

Homer and Hesiod are worth anything. Please to look at them, and if you think they should be charged less than the blue grounds, put them at what you please. These very fine and perfect works should be charg'd singly, upon inspection, with some relation to their individual merit, and when there are defects, put such pieces at lower prices, according to the degrees of their imperfections, and when the merit of such pieces as tablets, or such suits as the muses rise above a medium, I think they should be mark'd with a price accordingly. What I meant to offer to your consideration upon the subject is shortly this—that a Homer and Hesiod tablet, or a suit of the muses, should not have a fixed and invariable price like a quart mug, but that this individual tablet, or that suit of the muses should be so much—8, 10, or 12 guineas, according to their comparative merit; and if it is necessary to fix a medium price, I would, nevertheless, have some fixed, both above and below that medium, if the difference in the fineness of the pieces would bear the distinction.—*Ibid*, March 14 and 15, 1779.

It is well before quitting this part of the subject to refer to a later passage, in which the author, no doubt upon good grounds, informs us that "had Wedgwood had to live upon the fruits of his cameos and his bas-reliefs, he would have died a poor if not an insolvent man."

Did we not know how slight a cause may interpose to prevent worthy and kindred minds from mutual comprehension, we should be sarted at finding Wedgwood characterizing the gentle Flaxman as "a supreme coxcomb," and apparently doubtful how far his services were likely to be available to the firm. This epithet, however, it is fair to mention, was used before their connection began, and we may safely conclude that Wedgwood's feelings soon changed towards the man to whose exquisite taste and skil so much of his own fame was due.

Great amazement will, we think, be felt by any one who takes the trouble to peruse some of Flaxman's bills for work done, which, drawn out in ordinary tradesman's form, are to be found in Miss Meteyard's volume. Muses are to be had cheap; Polyhymnia, and several of her sisters, figure here at half-a-guinea per head. Two vases are charged at three guineas the pair, and as these have been engraved, we have been able to obtain good opinion of the time requisite for their execution. This, even on the assumption—which is probable—that the body of the vase was supplied to the modeller ready turned, cannot be rated at less than a fortnight. Making all requisite allowance for the greater value of money at that time, such prices as these (and there are many such) are quite inexplicable. We notice without wonder that Wedgwood and Bentley experienced great inconvenience from the difficulty of getting workmen sufficiently skilful to carry out instructions, and are not surprised that a shrewd man of business, like Wedgwood, should in one of his letters originate an idea which took a long time to fructify, viz., that of a school of art. With that pleasing hope of future fame, without which few great things have ever been achieved, we find him even anticipating the awful New Zealander, and hoping that travellers may hereafter, "perhaps one thousand years hence," recognise a particular style of work as belonging to Wedgwood and Bentley's school. The curious fact—for fact it assuredly is—of Wedgwood being probably the earliest producer of a photographic picture on metal, is mentioned in these pages, and an engraving of the plate is given. Miss Meteyard does not pursue the question so much discussed some time since of the paper "sun-pictures" discovered at Soho; nor indeed was it needful for her to do so, as they have no direct connection with her subject. At the end of the work a few pages are devoted to an account of the Wedgwood Memorial Institute, now gradually approaching completion, which bids fair to become a worthy, appropriate, and useful testimony of the regard in which the name of Wedgwood is and will long be held by his countrymen.

It is impossible to close this article without a hearty commendation of the judgment and liberality shown in the engravings, typography,

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and even the binding of this beautiful volume. Many a work, pompously announced as "the gift-book of the season," has far less claims to the title, unless the garish fascinations of chromo-lithography be permitted to carry the day over the numerous and admirably-executed illustrations of this work.

SERMONS OF MR. HENRY SMITH.

The Sermons of Mr. Henry Smith, sometime Minister of St. Clement Danes, London. Vol. I. (William Tegg.)

THE Author of these Sermons was one of the band of Puritan Divines, whose writings form so valuable a portion of the literature of the Christian Church in England. Born at Withcote, in Leicestershire, of a good family, about the year 1550, he was educated at the University of Oxford, where he appears to have imbibed opinions which aroused certain scruples in his mind as to "the point of subscription, and the lawfulness of certain ceremonies," and which prevented him from undertaking the charge of a congregation of the Established Church. Not wishing, however, as Thomas Fuller expresses it, "to make a rent either in his own conscience or in the Church," he accepted the lectureship at St. Clement Danes, in Fleet Street, where he seems to have continued until his death, in 1593. Mr. Smith soon acquired a great reputation as a preacher, his church being so crowded that, as his biographer quaintly expresses it, "persons of good quality brought their own pews with them, I mean their legs, to stand thereupon in the alleys." The opinion entertained by his contemporaries of his ability is seen by the title of *The Silver-tongued Preacher*, and *The Chrysostom of the Age*, which they gave him. A curious instance of the influence of Mr. Smith's preaching is related. On one occasion he took for his text the nursing of Isaac by Sarah, and impressed on his congregation the duty of all mothers to nurse their own children. His biographer states that "it is almost incredible how many persons of honor and worship, ladies and great gentlewomen (with whom his congregation was constantly crowded) was affected therewith; so that I have been informed, from such whose credit I count it a sin to suspect, that they presently removed their children from the vicinage around London, and endeavoured to discharge the second moiety of a mother, and to nurse them whom they had brought into the world." We see from this that the practice which Mr. Smith disapproved of is not of recent introduction, and our readers will, doubtless, be inclined to agree with those who, as the relater of the anecdote expresses it, "conceived Mr. Smith, because a bachelor, an incompetent judge hereof, as unacquainted with feminine infirmities; so that as St. Augustine, on another account, was called *durus Pater Infantum*, so Mr. Smith might be termed *durus Doctor Matrum*."

Notwithstanding Mr. Smith's influence as a preacher, and his possession of that universal charity which enabled him "to unite with them in affection from whom he dissented in judgment," the Episcopal authorities several times sought to bring him to punishment for his disinclination to "conform." Fortunately, however, for Mr. Smith, his preaching had secured for him the protection of the Great Treasurer of England, William Cecil, Lord Burleigh, through whose influence he escaped from the persecutions intended for him. The Preacher showed his gratitude to his protector by dedicating to him the sermons before us, many of which, however, appear never to have been actually delivered, but to have been written after illness had compelled the writer to retire from the post in which he had laboured so earnestly, and occupied with so much success.

It would be impossible, in the space to which we are limited, to give a detailed statement of the contents of the volume before us. The sermons embrace a great variety of subjects, as the titles of some of them will sufficiently show. The first discourse is "A Preparative to Marriage: the Honourableness, Causes, or Ends of it." If space allowed, we

would gladly give some extracts from this admirable discourse, the study of which by intended venturers into the mazes of matrimony might lead to fewer ill-assorted marriages, and to more happy households than the revelations of our Divorce Court would lead us to believe at present exist. We have also sermons on "Usury," which, even in its mildest form of taking "lawful" interest, the preacher wholly condemns. His opinion on this point is thus summed up—"I would have no man pay interest unto usurers, but for necessity; even as a traveller giveth his purse unto a thief, because he cannot choose!" Three discourses on the Pride, the Fall, and the Restitution of Nebuchadnezzar are good examples of the peculiarities of our author's style. In the titles, "A Glass for Drunkards," "A Looking-glass for Christians," we have instances of the practice then so common, of likening a discourse to a mirror, in which the reader may see himself reflected. It may be doubted whether many of the numerous volumes of sermons, which yearly issue from the press, are ever read by any but their authors. It cannot be denied either that works of this sort are generally very dry reading, or that the modern public have little taste for the perusal of printed sermons. The fact is, modern pulpit discourses are usually of such a character that the having to listen to them is quite a sufficient infliction for any rational being. A comparison of modern sermons with those before us will soon show the cause of our repugnance. In the latter, there is a strength of argument—although at times combined with a tendency to discover fanciful analogies—and a quaintness of language and thought, which make more prominent the almost total absence of these qualities in modern productions. Those who find a difficulty in getting through the modern productions of the pulpit press will have none with respect to the sermons before us, and we commend them, both for their style and substance, to their attentive perusal.

POSITIVIST HISTORY.

France under Richelieu and Colbert. By J. H. Bridges, M.A. Post 8vo, pp. xi.—201. 8s. 6d. (Edinburgh, Edmonston & Douglas. London, Hamilton, Adams, & Co.)

THE great work of Mr. Buckle has familiarized us all with what may perhaps be not unfairly called the Comtian method of history. Though its author never reached the end of his introduction even, his business was substantially done. The very incorrectness of some of the details added to the charm. Minute readers were glad to be able to find mistakes, and to correct so omniscient a mind. Without being aware of it they became interested and warmed in the search, and, when they had triumphantly demonstrated that this assertion was too sweeping, and that inference was drawn from somewhat too narrow premises, they found that they had insensibly adopted their author's principles, and helped to consolidate the method, which was the real object of the undertaking. The only direct allusion which Mr. Bridges makes to Buckle is in a note, where he points out that in the History of Civilization the deadening influence of Louis XIV. upon the intellect of the French nation has been somewhat exaggerated. It is not quite true that "everything which is celebrated was effected in the first half" of that reign. Racine's master-piece belongs to the latter half; and a very respectable list, including Fénelon and Malebranche, who died in the same year with Louis XIV., may be furnished, to prove that something was sacrificed to a determination to exhibit an unsatisfiable argument, or to prove that governments are powerless for good, but have not only the wish, but great power to do enormous mischief. Mr. Bridges is, moreover, a professed Positivist. But whilst we do not doubt for a moment that he has derived his inspiration direct from the teaching of the great Founder himself, it will perhaps be more intelligible to the ordinary public if we say that these Lectures deal with history after the Buckle

fashion. Having said so much, we must not forget that Mr. Bridges throughout is anxious to pay his homage to "the great intellectual achievement of our own century, the historical and social philosophy of Auguste Comte." How great a difference that century has made in the conception of social phenomena may be rather felt than described by any one who will compare "The Age of Louis XIV." by Voltaire, with the discourses which the Philosophical Institution of Edinburgh was content to listen to under the same title. Whether modesty has suggested the alteration, or some other motive, we are sorry for the change. No one could have found fault with a writer who approaches his subject from such a totally different point of view with any idle vanity of rivalling Voltaire. The antithesis would be one not of style or individuality of thought, but of a whole philosophy; of, in fact, a social revolution. Perhaps, however, Mr. Bridges is right after all. Only a few days ago, in our remarks on Mr. Froude's new volumes, we were led involuntarily to the conclusion that the time might shortly come when historical works would derive their titles not from the national Representative of the day, but from the real administrations of a country. Whether such a time has already arrived or not we cannot say; but some compendious system of dealing with the roll of history will be unavoidable in these days, when the business of actual life is so multifarious and engrossing; and the chief difficulty lies in finding some general points of agreement, round which the details of courts and camps, and individual character, may be harmoniously arranged.

It is safe enough to say, that during the last five centuries the feudal mode of life has been gradually decomposing, and there has been a "gradual accumulation of fresh materials, scientific and industrial, to supply its place." The difficulty is to say exactly at what stage a nation had arrived in either of these processes at any given period; how far the instinct of a minister or a sovereign led him to conceive the exact position in which he stood; and how far this or that historical figure retarded or accelerated the onward progress of Western Europe. During the madness of the great French Revolution, men's minds turned fondly to the memory of Turgot. He was the greatest statesman France, they thought, had ever produced. Could he have retained power how differently the great crisis might have been enacted! The proximity of Turgot effaced all the administrators of France who had preceded him. We are placed in a different position. We can see other men whose work, if it had been understood and properly carried out, would have prevented the horrors of '93, and saved Europe from the retrograde policy which was inaugurated by Napoleon I. The earliest of these was Richelieu. "To constitute the French republic; to reach that ideal government, where all the forces of the State should be directed to the common welfare, it was necessary first to constitute the French Monarchy, and to that object he bent the powers of his unswerving and relentless will." The chief merit of the historical part of this sketch consists in the grasp with which the three—Richelieu, Mazarin, and Colbert—are traced, as all carrying out the same great object, though, of course, the energy of each was directed to somewhat different portions of the plan. Richelieu crushed the feudal aristocracy.

His course was wise, merciful, and inflexibly severe. He struck the chief traitors, and these alone. When he enforced his laws against duelling, it was a Montmorency whom he chose for his example; when he wished to strike terror in the crew of malversators of the public money, it was a Marshal de Marillac whom he sent to the scaffold. The list of the defendants in his State trials suffices to show this. Forty-seven sentences of death for political offences were pronounced during his reign. Among those who suffered we find five dukes, four counts, a marshal of France, and the King's special favourite and grand equerry, Cinq-Mars. Most of the rest were nobles, though of lower rank. Of these forty-seven sentences, twenty-six only were actually put in force; a number which, like that of the victims of the guillotine, is far less than the loud cries uttered against Richelieu's tyranny have

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led historians to imagine. That each of these twenty-six men was guilty of high treason, ten times over, treason, unpalliated by a single worthy motive, was not, and could not be denied. But the shrieks of expiring feudalism were loud and long; and Richelieu's name was cursed by the aristocracy of France, until Danton supplied another and more formidable object for their curses.

Mazarin carried out his external policy, the humiliation of the retrograde powers of Austria and Spain; and, as he had been bequeathed to France by Richelieu, so Jean-Baptiste Colbert was bequeathed by Mazarin. Had the policy of Colbert prevailed—

The horrors of the French Revolution, and of the counter-revolution that followed it, would have been spared. The French revolution itself would none the less have taken place; nay, it would have taken place probably far sooner. But the inevitable disappearance of the last relics of feudalism, the inevitable transition from hereditary monarchy to republican government, from an antiquated State religion, to spontaneous forms of faith better adapted to the time, would have taken place, not without a struggle, but without the sanguinary tragedy, without the military orgies that for twenty years convulsed and paralysed Europe.

Yet before his death the tide of feudal and Catholic reaction had set in, under Louis XIV. He succumbed to the organization of the Jesuits. The political restoration of Catholicism was their object; and, though ultimate success was impossible, yet for half-a-century they contrived to wield the authority of the most powerful of European Kingdoms. Justice has never been done, and perhaps never will be done, to the Order. One striking thought we must select from our author's brief summary of their career. "The history of the Chinese mission alone is enough to redeem them from the foolish sneers of Protestant writers. Their introduction of Western science into China, *their acceptance of the two great institutions of the country, the worship of Heaven and the worship of Ancestors*, as a common basis of sympathy on which to work, contrasts strangely with the narrower spirit of Protestant Missionaries."

As a Positivist monograph upon a most important epoch of the history of progress, Mr. Bridges' book does credit to his school. There is a thorough appreciation of every sort of intellectual excellence, which was so marked a feature of Comte himself. Everything falls logically into its place, if you can only accept the premises; and those who are unacquainted with Comte's analysis of European history will find here an excellent introduction to that performance, which, in the judgment of Mr. Mill, has been done so well that it will probably never be attempted in its totality again.

THE THRONE OF DAVID,

The Throne of David, from the Consecration of the Shepherd of Bethlehem to the Rebellion of Prince Absalom. Fscap. 8vo, pp. xxviii. —459. 5s. By the Rev. J. H. Ingraham, LL.D. (Virtue Brothers, & Co.)

THE "Throne of David," is the third of three books completing the history of the Hebrew People, the first one published, though it is the last of the series, being "The Prince of the House of David," and illustrating the decadence of Hebraic power, as "The Pillar of Fire" unfolds its beginning; while its final culmination is presented in the work before us. The central figure of "The Prince of the House of David," is Jesus, the "Son of David," our most blessed Lord and Saviour; the time of that work embraces a period of about four years from the appearing of John the Baptist, to the ascension of our Lord. Thus the three books cover the whole field of Hebraic history, from the Bondage in Egypt to the reign of Solomon, and thence to the Crucifixion of Jesus.

The central figure of "The Throne of David" is David—Prophet, Priest, and King—and type of Him, who, as the last Prince of his house, transferred the Throne of David from earth to Heaven—from Jerusalem below to Jerusalem above. It presents David as a

shepherd and a poet, in his friendship with Jonathan; in his victory over the Philistines; in the splendour of his regal magnificence; in his flight from Prince Absalom; and in all the scenes of his later life. Absalom in his rebellion, and Solomon in his kingly glory, are leading features of the work.

During the period embraced in this work, lived four of the most wonderful men of any age, viz:—David, Saul, Samuel the prophet, and Solomon the greatest and wisest of men; and to render the subject more interesting, and in order, no doubt, to secure more familiar and vivid expression, the "Throne of David" is presented to us in the form of letters.

Religious romances are much more successful things than religious poems. The latter must necessarily contain a large amount of theology; the former may be content with only the skeleton of Biblical history, and, with due respect to the devotion and taste of all, may modify the received narrative into the shape best adapted to convey the moral of the story. This is a very ingenious specimen of the religious novel, though the form in which it is presented to the reader is not, perhaps, the most attractive, but it would have been difficult to introduce the minute descriptions of the Israelites, which is one of the author's principal objects, by any other device.

Assyria is under the rule of the youthful Belus, who has just come to the inheritance of that vast Empire, and it is the wish of his mother he should seek the hand of an Egyptian Princess in marriage, in order that he might strengthen his empire by an alliance stronger than that of a treaty. Arbaces, the Ambassador whom he has chosen, departs with a magnificent retinue, and his letters to the King, his master, contain a minute description of the habits and customs of the Israelites, the power of their King, and the wealth of their nation; but the chief interest in the book is the Rebellion of Prince Absalom. No allusion to Nineveh appears in the sacred traditionary records of the Jews until about two hundred years after the conquest of the Promised Land, yet the splendour, power, and wide dominion of the Assyrian Empire, was not unknown to them. At the time the envoy of King Belus traversed Judea, Israel was under the government of Samuel, vicegerent of God, controller of the priesthood, and judge by the voice of the people he governed, without opposition by the dictates of his single will. Under his long and able administration of affairs, he consolidated the government of the Jewish Tribes. Noble in presence, grave with wisdom, venerable with years, he commanded even the admiration of the enemies of his nation; and his fame as a "seer" extended to the kingdoms of the heathen around him, while his name was spoken even with reverence at the haughty and luxurious Court of Belus, the King of Assyria. Many and interesting are the passages connected with the reign of Saul, and the wars with the Philistines, and the discomfiture of Goliath by David, then a stripling and a keeper of sheep. Then begins the career of the great King: how first he finds favour in the eyes of Saul, who eventually hates the man who has done so much for himself and his people; his exploits in the wars, and his elevation to the Throne and Government are matters we would recommend the reader to discover from the book itself.

The subject is deeply interesting, and the extraordinary scenes in the life of a Monarch, whose whole career, from the hour of his consecration as an ingenious young shepherd, to his death as a venerable and penitent Monarch, is without parallel in the history of Kings. The Royal Line of the House of David continued under various vicissitudes and interruptions, until the birth of the last Prince of the Throne of Judah, in his own native city, Bethlehem, according to the prophecy of Jacob: "The sceptre shall not depart from Judah, nor a lawgiver from between his feet, until Shiloh come." Of whom it is prophetically written, "He shall be great, and shall be called the Son of the Highest, and the Lord God shall give

him the Throne of His Father David. And He shall reign over the House of Jacob for ever; and of His kingdom shall there be no end."

Truth is stranger than fiction, and certainly, nothing can be more wonderful than the history of the Hebrew People, their bondage and wanderings in the wilderness seeking vainly for the land promised to their fathers and to them, and which they had come forth from Egypt, with great power and glory of deeds, to find and conquer, the miracles performed for them, and the wars they engaged in with all the powerful nations that surrounded them, their occupation of the Promised Land, and rise to power, and their gradual decay, are subjects of peculiar interest to all.

The Bible is a legitimate field for human research. Like the globe, its mines of gold and silver are by man lawfully penetrated and worked for their treasures. Every sermon gathers its wealth of thought from its sacred pages; every commentator finds in the golden sands of its rivers of Life, his riches of illustration. The pious art-painter portrays with his pencil its holy incidents; and the religious sculptor chisels in marble his devout and elevated conceptions of the forms and features of its prophets, priests, kings, and martyrs; even the ideal human form of the Divine Son of Mary, without rebuke and without impropriety, art devoutly, and reverently commands the marble to reveal, so far as the lofty conceptions of concentrated genius can reach, the unknown and heavenly lineaments. Destroy all pictures and statues which illustrate sacred characters and scenes, and art would be destroyed with them; for upon the incidents of the Old and New Testaments, nearly all fine art has hitherto been nourished; and to illustrations of their holy scenes it is indebted for nearly all of its glory and splendour.

ANGLICANISM AND EASTERN CHRISTIANITY.

Catholic Orthodoxy and Anglo-Catholicism. By J. J. Overbeck, D.D. (Trübner.)

H. Oeia Aetropypia—The Divine Liturgy of St. John Chrysostom done into English. (Masters.)

Yearnings after Unity in the East. Occasional Paper of the Eastern Church Association. No. III.

IT would be indeed strange if the Eastern Church were roused from the slumber of centuries by the clamour at its gates, which a certain party of Anglicans are at present making for admission. At all events, the Eastern Church Association is strictly scriptural in one particular: it is determined to succeed "because of its importunity" if by no other means. It has set itself, with all its might, to besiege "Orthodoxy" in its own time-honoured stronghold. It has steadfastly turned its back upon the "Old Lady of Babylon," with all the men who have gone over to her, and is carrying a desperate flirtation with her greatest and most formidable rival. In the mean time it may be useful for us, as outsiders, to see what we can make out of this extraordinary movement, and to see whether there is anything in it which does not appear upon the surface.

The obvious cause of this violent longing for union with the East on the part of a great number of Anglicans is a feverish, impatient longing to be recognised by some ecclesiastical community, which is admitted to be orthodox by the other Christian Churches. They have tried Rome with all their might; but Rome will have none of them. The only reply they get is—"submission." Roman authorities tell them, then, plainly, "You have separated from us; you have cast out our Bishops, and appointed other Bishops of your own choosing, and of whose consecration you can give no satisfactory account: you have lost your voice in the councils of the Latin Church, and substituted articles of religion sanctioned by Act of Parliament: nothing then remains for you to do but to submit to the authority you have overthrown, to ask pardon for your separation, and to be received again into the fold you have left."

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We could scarcely have expected any other reply from Rome, and we could still less have expected that this reply should find favour in the eyes of the English Unionists. We are, consequently, not surprised at their turning to the East in hopes of better success. More was to be hoped for from that quarter than from Rome. The organization was not so compact. There was no central authority. There was no claim to infallibility. There was not a deadly feud of three centuries' standing to be healed. Might they not hope that after all here was a chance of being recognised by a Church whose Apostolical descent was undoubted, and who had held fast all the ancient forms of belief and practice? It is with this object that the Eastern Church Association arose, and is industriously disseminating its publications. The one we have before us—*Yearnings after Unity in the East*—is, to say the least, peculiar. It tries to make out that, because the Metropolitan of Chios is anxious for the union of the Greek and Armenian Churches, the same principles which he applies to that union would be applicable to the union of the Greek Church with the English. To show how absurd this conclusion is, it will only be necessary to quote the third condition which Gregory proposes for the appointment of a Commission:—

No inquiry shall be made concerning the validity of the Orders and of the Baptism of the Armenians; because all doubt on this point is a contradiction to the design of negotiations with a view to the union and reconciliation of Christian brethren; * * * for how can we confer with men who are supposed to be without a priesthood, and unbaptized?

One would certainly suppose that this would be sufficient to settle at once and for ever all hopes of negotiation with the Greek Church, for certainly all the members of that Church, who know anything at all about the matter, do believe the English Church to be *without a priesthood*. In other words, the Metropolitan, whom our Anglican friend quotes with so much naïveté, intends to say, "we can only confer with those whose orders are so undoubtedly valid that there can be no possibility of discussion about them." How the Eastern Church Association can imagine the Church of England to be in this position we cannot understand. At all events, if they hug this fond delusion, Mr. Overbeck does not share it with them, and as a member of the Greek Church, and a man of more than ordinary learning and research, he certainly deserves to be heard upon the subject. He declares most distinctly that the orders of the Anglican Church cannot be valid; and although our space forbids us from entering into his arguments, there is a great show of plausibility about them. But farther than this, he considers that even if there were no flaw in the Anglican orders, it would still be impossible to bring about intercommunion between the two bodies; at all events, in the present state of the English establishment. In one place he distinctly states that so long as the English Church is obliged to admit to communion those who deny baptismal regeneration and apostolical succession, it will be impossible for the Greek Church to look at them in any other light than that of heretics. Thus Anglicanism does not seem to get much better treatment from the East than from Rome. But even suppose it did, what would be the gain to the English Church? Would a union of living heterodoxy with dead orthodoxy be of much use to the former? Would the mixture of Czar-worship and crass ignorance and grovelling superstition, which passes for Christianity in Russia, for example, be any improvement upon the High Church, and Low Church, and Broad Church, and easy-going Nothingarianism of the Establishment? We cannot see how. What has the Eastern Church done in those countries in which it is indigenous that we should endeavour to cultivate it as an exotic? Has it ever developed any of those glorious charities that have been the ornament of Western Christianity? Has it ever generated any religious order except those lazy "contemplative" ones that drone away

an existence of wretched sloth and ignorance, supported by a people whom they have never tried to raise above the level of the brutes? Mr. Overbeck congratulates his Church upon never having produced any Jesuits—but even Jesuits have their bright as well as their dark side; and at the worst they represent a phrase of powerful concentrated energy and self-devotion—an incessant working and toiling without any personal advantages. At all events, they represent life, and life is better than death, motion is preferable to stagnation; and Englishmen, of all people in the world, are the least likely to sympathise with those who have never done anything at all upon the ground that they have done no harm.

As a rule, it is a good thing when Englishmen desire union with anything; for it shows a reaction against that horrible isolation of thought which has been the curse of our country for many years. It is always good when men begin to be weary of isolation; but at the same time they should be careful in their choice of companions, or the good instinct may lead to a very bad result. And as with individuals, so with Churches; it is not good for them to be alone; but solitude is better than bad company.

The translation of the "Divine Liturgy" we shall with much pleasure. Although avowedly written for the use of those Englishmen who wish to assist in the services of the Greek Church, it will probably not be of much use for that purpose. For one thing, the pronunciation is so utterly different that no Englishman would be able, for a long time, to follow the offices of the Greek Church, however well he might be acquainted with the language. But as a means of making known an ancient and very beautiful liturgy to a great number of Englishmen, the work cannot be too highly praised. The translation has been carefully performed, and the book is beautifully got up, the red-letter printing particularly, being some of the best we have ever seen produced in this country.

NOVA SCOTIA.

Confederation considered in Relation to the Interests of the Empire. By the Hon. Joseph Howe. (Stanford.)

Newfoundland v. Confederation. The Petition of the Merchants, Traders, Fishermen, and other Inhabitants of Newfoundland.

Nova Scotia v. Confederation. Petitions from Inhabitants of Nova Scotia.

IT is not long ago since we explained the views of Messrs. Bolton & Webber with respect to the proposed Confederation of British North America. That the Canadas should be united, and that possibly New Brunswick should be added to their border, seemed reasonable enough. But Nova Scotia, they argued, is, in fact, an island. When every other possession has gone from the mother country, she will still want islands as long as she has any desire to maintain an empire in or over the seas, and so long as she can maintain that empire, she will have the power to preserve such island fortresses as she may deem necessary. Hence, Nova Scotia should be preserved at any cost, and from its configuration and natural advantage, that cost would be small. The Hon. Mr. Howe has now published a pamphlet on the same subject. He is rather discursive, and apt to press into his service illustrations from the history of the United States, which only embarrass his argument. This is also an American style, which might have been in fashion years back on this side the Atlantic, but is now scarcely understood. Lord Eldon compared some minister to the Beast, but he did not repeat the experiment, and to compare Mr. Salt and Mr. Brown, of whom scarcely fifty ordinary Englishmen have ever heard, to Herod and Pilate, smacks too much of pulpit oratory. No eloquence and no pen, however, will ever get the English public to trouble themselves about the feuds of Colonial Governors

with their ministries or parliaments; and if Canada is determined to be independent, they will very soon be equally indifferent whether it remains separate from, or is united to, the Great Republic. Her Majesty's sons seem in no hurry to place crowns on their heads. Perhaps they are too much behind the scenes; or they may be influenced by the result of Maximilian's experiment. Mr. Howe's vaticinations or warnings are not likely to have the slightest effect upon thinking people. The question of Nova Scotia involves two considerations: first, is its possession a matter of such importance to us as that of Gibraltar or Malta? secondly, are we to keep even those dependencies against the wishes of the nationalities to whom they more immediately belong, and who would certainly obtain them, either by force or negotiation, if they were powerful enough? There is also a third consideration: that whatever justification there may be for retaining such outposts as we have mentioned, the country is in no humour to increase the number of them. Now the answer to the first question must depend very much upon the chances of peace between England and America. So long as that is unbroken, the sovereignty of Nova Scotia is of no consequence to us as a nation. And the contingency of a rupture is one which is not at all likely to affect the final decision of our Parliament. It is very improbable even now, and would be still more so if we withdrew entirely from the Continent. The time is gone by when sentences like these are deemed worthy the name of reasoning. "In the event of a war with France, either Nova Scotia with her 20,000, or Newfoundland with her 38,000 hardy seamen, would, if furnished with gun-boats, sweep these 10,000 Frenchmen off the ocean in a single summer, and then come home to guard the coasts of England till the war is over." Statesmen cannot act upon such rhapsodies. No man can foresee what or where our danger would be if we really even went to war with France. We provide, though even that is doubtful, for the security of our chief arsenals. Our very coast fortifications are rather to avoid the reproach of inviting an attack from some new form of government suddenly installed in Paris. Beyond this we cannot go. Tall talk of this kind will only injure those who use it. If a colony gets the notion that it is indispensable to England, the day of its separation draws nigh. Feelings of indefinite and prospective services are no more to be depended upon than those of gratitude. Alliances, offensive and defensive are out of fashion. They belong to a period when war was the rule, and peace the exception. Our policy now is based upon an unconscious theory of perpetual peace. We are and always shall be unprepared. Events on the Continent justify us in this attitude. Italy will no more be the theatre for German gladiators; and from united Germany we have nothing to fear. A universal disarmament is far more likely than a state of chronic suspicion of one's neighbours. It may be witty to calculate that "should the troops of the new power be extended along the land frontier facing the United States, they will only be 37 yards apart, and may occasionally catch a glimpse of each other where the country is not thickly wooded," but Mr. Howe should reflect that his moments of gaining the ear of his fellow-subjects are very few, and they should be employed in speaking to the point. It is not likely that Confederation will be forced on Nova Scotia, should its representatives object. It would be well for them could they separate their interests from those of New Brunswick. That province must go with the main land. Basing itself upon its insular position, being careful not to exaggerate its importance, seizing favourable opportunities to bring its undoubted claims before influential personages, Nova Scotia may continue to be anchored by the side of the British Isles rather than by America, until even to her own inhabitants the question may be one rather of pride and affection than policy. But the less her advocates reproach Ottawa and Quebec the better their chance. The seat of Canadian

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Government must be great and powerful. Halifax can be after all but a free town, and Frankfort has read a lesson to burghers who come between conquerors and their prey.

THE PUBLISHING SEASON.

MESSRS. W. & R. CHAMBERS announce—"Navigation," by James Pryde, a cheap popular treatise for use in Schools and for Seamen;—A new edition of "Chemistry," by the late George Wilson, in which the Old Notation is retained, and the New Notation and Nomenclature have been added, the whole work revised by Mr. Stevenson Macadam;—and "A Popular Treatise on Railways, Steamers, and Telegraphs."

MESSRS. DEAN & SON put forth a long list, chiefly of Juvenile Publications, and including—"A Scenic Robinson Crusoe," constructed on an entirely new plan;—"The Flexible-Faced Hearty Old Boy, who Looked Always the same in his Coloured Picture Transformations"; and many other ingenious novelties for the amusement of young folks.

MESSRS. GRIFFITH & FARRAN have nearly ready for publication—"Nooks and Corners of English Life, Past and Present," by John Timbs;—"Lightsome and the Little Golden Lady," by Charles Bennett;—"The Early Start in Life," by E. M. Norris, daughter of Captain Marryat;—"Casimir, the Little Exile," by Miss Peachey;—"Lucy's Campaign, a Story of Adventure," by Mary and Catherine Lee;—"Gerty and May," by the Author of "Granny's Year Book";—"Tales of Country Life," by Frances Freeling Broderip, daughter of Thomas Hood;—"Helen in Switzerland," by the Honourable Augusta Bethell;—"The Holidays Abroad, or Right at Last," by Emma Davenport;—"His Name was Hero," by the Author of "The Grateful Sparrow," &c.;—"Nursery Times, or Stories about the Little Ones," by an Old Nurse;—"The Surprising Adventures of Clumsy Boy Crusoe," by Charles H. Ross;—"Infant Amusements, or How to Make a Nursery Happy," by W. H. G. Kingston; &c. Most of these books will be handsomely illustrated.

MESSRS. A. & C. BLACK announce a new edition of the "Waverley Novels," in monthly parts, price sixpence—each part containing a complete work. The first part will appear on the 1st of November;—also a "Life of the late David Roberts, R.A.," illustrated with etchings and pen-and-ink sketches by the Artist.

THE RELIGIOUS TRACT SOCIETY have in preparation—"The Fishers of Derby Haven," by the Author of "Fern's Hollow";—"Howson's Scenes from the Life of St. Paul, and their Religious Lessons";—"Who giveth Songs in the Night"?—"Words of Comfort for the Sorrowing Children of God";—"Jonah the Prophet, Lessons on his Life," by Professor Gausen; &c.

MR. S. W. PARTRIDGE has in the Press—"The Great Pilot and His Lessons," by Dr. Newton, with illustrations;—also a new edition of "A Golden Year and its Lessons of Labour," by the Author of "Marian Falconer."

MESSRS. LETTS and MESSRS. T. J. & J. SMITH have issued their copious lists of Commercial, Professional, Pocket, and Scribbling Diaries for 1867. MESSRS. R. & A. SUTTABY have also issued their lists of Ladies' and Gentlemen's Pocket-Books for 1867.

MESSRS. JACKSON, WALFORD, & HODDER announce—"Ecclesiastical History, from the Opening of the Long Parliament to the Death of Oliver Cromwell," in 2 Vols. I. The Church of the Civil Wars.—II. The Church of the Commonwealth, by John Stoughton, author of "Spiritual Heroes," &c.;—"The Family Pen; Memorials, Literary and Biographical, of Jane Taylor, and other Members of the Ongar Family," in 2 Vols, by the late Isaac Taylor, Edited by his Son, the Rev. Isaac Taylor, M.A.;—"Lamps, Pitchers, and Trumpets." Lectures delivered to Students for the Ministry on the Vocation of the Preacher, by the Rev. E. Paxton Hood;—"Memorials of the Clayton Family," in 1 Vol., by the Rev. T. W. B. Aveling;—The First Issue of "The Christian Year-Book," an Annual Review of the Position of Christianity and the Progress of Christian Effort;—"The Book of Praises," being the Book of Psalms according to the Authorized Version, with Notes original and selected, by the late William Henry Alexander, in 1 Vol., cr. 8vo;—"Washed Ashore; or, the Tower of Stormont Bay," a Story for the Young, by William H. G. Kingston, author of "Peter the Whaler," &c.;—"Violet Vaughan," by the Author of "Thornicroft Hall,"

&c.;—The New Volume of "Old Merry's Annual for Boys and Girls," illustrated;—The First Volume of "The Pulpit Analyst," Edited by Joseph Parker, D.D., containing contributions from Rev. W. L. Alexander, D.D., Rev. Professor Alfred Newth, Rev. Enoch Mellor, M.A., Robert Ferguson, L.L.D., Rev. H. W. Parkinson, Rev. George Gilfillan, M.A., Rev. J. A. Macdonald, Rev. John Ross, Rev. Professor T. D. Hall, M.A., Rev. Watson Smith, &c., &c.;—and "The Congregational Year-Book for 1867."

MR. HARDWICKE's list includes—"On Diseases of the Stomach," by Dr. Habershon;—"Osteology for Students," by Mr. Arthur Treherne Norton;—the second portion of "Trousseau's Clinical Medicine," by Dr. Bazire;—"Complications of Parturition," by Dr. J. Hall Davis;—"On Malignant Cholera," by Dr. Crisp;—"On Diseases of the Joints," by Mr. Holmes Coote;—"The Prescribers and Dispensers' Vade Mecum," by Mr. A. J. Croley;—"On Localised Electrification," from the French of Duchenne, by Mr. J. N. Radcliffe;—"The Remains of the late Hugh Falconer," edited by Dr. Murchison;—the Sixth Volume of "English Botany," edited by Mr. J. Syme;—"In the Plain and on the Mountain," by Charles Boner;—"The Autographic Album," by Mr. L. B. Phillips;—"A Synopsis of Heraldry," by C. N. Elvin;—"A Guide for Parents in the Choice of Schools and Colleges," by Herbert Fry;—"The Book of Knots," an illuminated work by the author of "The Changed Cross";—"Report of the Nottingham Meeting of the British Association"; &c., &c.

CORRESPONDENCE.

CELT'S IN IRELAND.

To the Editor of THE READER.

Sir,—I am quite of accord with "G. H. K." as to the precise meaning of the term "to Hell or to Connaught"—that the Catholics of the other three provinces were given the option of accepting the Reformation or retiring beyond the Shannon, neither have I any doubt that some Catholics of Anglo blood preferred Connaught to the Reformation, but I do reject, as monstrous and unfounded, the assertion that anything like a large number of the reluctant emigrants were, or could have been, other than native Irish by blood and race.

Where could the large proportion of Anglo-Irish Catholics, which is necessary to "G. H. K." theory, have come from? When Elizabeth ascended the throne of England, the number of persons in Ireland of English descent was comparatively very small, even within the Dublin "pale." From the first, most of the Anglo-Irish, with the Butlers of Ormond at their head, accepted the Reformation, and from that period downwards, it must be allowed on all hands, that such English colonisation or "planting" as took place, was entirely Protestant, and Protestant of the most ultra description. Consequently, edicts of Elizabeth and subsequent sovereigns banishing persistent Catholics into Connaught would almost exclusively affect the native Irish. To the present day we may see how finely the original line was drawn between Protestantism and the English on the one hand, and Catholicism and the Irish on the other. In 99 cases out of a hundred, where an Irishman bears an Anglo name, he is a Protestant; and in quite the same proportion he is a Catholic if he bears a genuine Irish name. The Desmonds were the only Anglo-Irish family of any note who (probably from rivalry with the Butlers) rejected the Reformation, and they were altogether sustained in their opposition by the Irish chiefs, priests, and people, as the records of the Geraldine wars show. I may well, therefore, wonder where "G. H. K." gets that vast body of Anglo-Irish Catholics, who, suffering for conscience sake, retired into Connaught in such numbers as to make Anglo blood predominate in that province.

"G. H. K." is thus thrown back upon the pre-Reformation Anglo-Normans, and these, I admit, did influence the population of Connaught to a preceptable, and not a purely imaginary extent. But this influence must not be over-rated. An Anglo-Norman adventurer, with a score or so of men of his own kindred or race, backed up by a little army of Irish kerns, might turn an O'Conor, an O'Flynn, or an O'Kelly out of his castle, and plant the name of Burke, Birmingham, Power, or De Courcy in Connaught, but surely this is very far from changing the whole blood and breed of the province from Irish to Anglo.

The extent to which those Anglo-Norman Conquerors influenced the population of Connaught, might be estimated, not only by Mr. Beddoe's simple and sensible plan, but also by a reference to any

record of Connaught names, about the time of Elizabeth, or (as I have endeavoured to prove above) after that time there could have been no enforced emigration of Anglo-Irish into Connaught worth speaking of. I find some such record in the satires of Aenghus Ruadh (a remote relative of my own, by the way, and a consummate rascal), who, in the reign of Elizabeth, made a tour through Ireland, for the purpose of satirising the Irish and Anglo-Irish families, at the instance of Sir Peter Carew. In his book on Connaught, he alludes to the O'Rodys, Macreynolds, O'Conors, O'Rourkes, O'Maddens, O'Kelleys, MacDermots, Maguires, O'Shangnessseys, O'Flyns, and other undoubted Irish families of some importance in his time. On the other hand, the only Anglo-Irish families he finds it worth while to satirise are the Clanricardes, the Jennings, and one or two other branches of the original Burkes.

Granting that Ruadh's record is far from perfect, it must be admitted that, from its object and intention, it is perfectly impartial as regards the question between "G. H. K." and myself; and it may fairly be assumed that omission on one side are counterbalanced by omissions on the other. It may thus be regarded as supplying a fair sample of the prevailing names in Connaught at the time of Elizabeth, and it is therefore conclusively against "G. H. K." theory.

But allow me to enter upon broader grounds in refutation of the assertions of "G. H. K." I will say that there never has been anything that could be called an English emigration into Ireland—i. e., an emigration which at all approached a "swamping" of the native blood of the island, as "G. H. K." makes out was the case with respect to Connaught. Social existence in England, even in pre-Elizabethan times, was something so very superior to life in Ireland, that there was little inducement (as, indeed, there is now) for people to emigrate from the former to the latter country—to live in the midst of such hardships as the poet Spenser endured, for example; and hold (then) almost worthless lands on the tenure of periodical hard knocks, burnings, and raidings. Now, surely, if Leinster, Munster, and Ulster—the three most fertile, settled, and accessible provinces of Ireland—were so little affected in blood and race by the infiltration of English as we find them to be at the present day, how can we expect Connaught—the wildest, least tempting, and most remote of the provinces—to have been so thoroughly Anglicised as "G. H. K." maintains?

And what are the facts with regard to Connaught as admitted, more or less, by "G. H. K." himself? The prevalence of strictly Irish names and manners, the superior vitality of the old Irish language, and the general acknowledgment that Connaught is an Ireland within Ireland, and her people Irish of the Irish. Those are just the conditions we may look for from a knowledge of the history of the country; but "G. H. K." in support of his favourite theory, will have it that they arise from other and very extraordinary circumstances, amongst others, that the English inhabitants of some parts of Connaught neglected their original language, and took entirely to speaking Irish, while the real Irish of other parts abandoned their mother tongue, and commenced the use of English! (See sixth paragraph of his letter.) I do not think I need further combat a theory which depends upon such highly improbable assertions.

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PUBLICATIONS OF THE WEEK.

ADAMS (Charlotte). John Hartley, and how he got on in Life. Fcap. 8vo, pp. 251. Routledge. 2s.

ADVENTURES (The) of a Midshipman. By Oliver Opt'e. Cr. 8vo, sd., pp. 128. Marr. 6d.

AUNT Louisa's London Toy Books. Sing a Song a Sixpence. The Life of a Doll. 4to, sd. Warne. 1s. each.

BELL (Major E.) Remarks on the Mysore Blue Book. Roy. 8vo, sd. Trubner. 2s.

BIBLE. The Holy Bible. Illustrated by Gustave Doré. Divisional Volume I. Folio. Cassell. 21s.

BROCK (Mrs. Carey). My Father's Hand; and other Stories and Allegories for the Young. With Illustrations. Roy. 16mo, pp. 218. Seeleys. 2s. 6d.

CESARIS Commentarii De Bello Gallico. With English Notes and Indexes by Charles Anthon, L.L.D. New Edition. 12mo. Longmans. 4s. 6d.

CASSELL'S Popular Natural History. New Edition. With Coloured Plates. Vol. 3. Birds. Sup. Ryl. 8vo, pp. viii.—408. Cassell. 10s. 6d.

CERVANTES. The History of Don Quixote. The Text edited by J. W. Clark, M.A., and a Biographical Notice of Cervantes, by T. Teignmouth Shore, M.A. Illustrated by Gustave Doré. 4to. Cassell. 30s.

CHILDREN'S HOUR (The). Twelve Songs for the Little Ones, with a Morning and Evening Hymn, set to Music by Mrs. G. Herbert Curteis. Obg. 4to, sd. Warne. 1s.

CHRONICLES of the Schönberg—Cotta Family. By the Author of "The Voice of Christian Life in Song," &c. New Edition. Post 8vo, pp. 477. Nelson. 6s. 6d.

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COLERIDGE (Samuel Taylor). *Biographia Literaria*; or, Biographical Sketches of my Literary Life and Opinions; and Two Lay Sermons:—1. *The Statesman's Manual*; 2. *Blessed are ye that Sow beside all Waters*. New Edition. Post 8vo, pp. viii.—40s. *Bell and Dally*. 3s. 6d.

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COPLEY *Annals, Preserved in Proverbs*. By the Author of "Village Missionaries," &c., &c. Sm. cr. 8vo, pp. v.—34s. *Seeleys*. 5s.

COTTON (Rev. Henry, D.C.L.). *Typographical Gazetteer Attempted*. Second Series. 8vo. *Clarendon Press*. 12s. 6d.

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JOURNAL of Social Science (The). Edited by E. Lankester, M.D. Vol. I. November, 1865, to October, 1866. 8vo. *Chapman and Hall*. 18s.

KIRK (John, D.D., F.S.A.). *Daily Bible Illustrations*. New Edition, revised and enlarged by J. L. Porter, D.D., LL.D. Morning Series. Moses and the Judges. April—June. Post 8vo, pp. viii.—464. *Oliphant*. 6s.

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NEIGHBOURLY Love; exemplified in two Juvenile Tales. Edited by Lady Emily Pepys. Roy. 18mo, pp. 157. *Routledge*. 1s.

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NORTON (A. T.). *Osteology: A Concise Description of the Human Skeleton*. With Atlas of Plates. 8vo. *Hardwicke*. 7s. 6d.

OXENDEN (Rev. Ashton). *Cottage Sermons*; or, Plain Words to the Poor. Second Edition. Fcp. 8vo, pp. viii.—334. *Macintosh*. 3s. 6d.

— *The Home Beyond*; or, A Happy Old Age. 60th thousand. Fcp. 8vo, pp. 136. *Macintosh*. 1s. 6d.

PINCHARD (Miss). *Max Frere*; or, Overcome Evil with Good. Roy. 18mo, pp. 220. *Routledge*. 1s. 6d.

POPULAR Science Review (The). A Quarterly Miscellany of Entertaining and Instructive Articles on Scientific subjects. Edited by Henry Lawson, M.D. Vol. 5. 8vo, pp. iv.—532. *Hardwicke*. 12s.

RAINBOW in Springtide. Tales by Sadie. Roy. 18mo, pp. 187. *Routledge*. 1s. 6d.

REPORTS Saint Bartholomew's Hospital. Edited by Dr. Edwards, and Mr. Callender. Vol. 2. 8vo. *Longmans*. 7s. 6d.

ROBIN Hood, Life and Adventures of. By John B. Marsh. With Illustrations. New Edition. Sm. cr. 8vo, pp. ix.—508. *Routledge*. 3s. 6d.

SHAKSPEARE, the Handy-Volume. Vol. 6. 32mo. sd. pp. 328. *Bradbury*. 1s.

THOMES (William H.). *Life at the Gold Mines of Ballarat*. Cr. 8vo, sd., pp. 122. *Marr* (Glasgow). 6d.

TISCHENDORF (Constantine). *When were our Gospels Written? An Argument. With a Narrative of the Discovery of the Sinaitic Manuscript*. 8vo, sd., pp. 120. *Religious Tract Society*. 1s.

TRENCH (Richard Chevix, D. D.). Notes on the Parables of Our Lord. 10th Edition, revised. 8vo, pp. vi.—518. *Macmillan*. 12s.

TURNER (William, M.B., F.R.S.E.). *Convolutions of the Human Cerebrum Topographically Considered*. 8vo, sd., pp. 28. *MacLachlan and Stewart* (Edinburgh); *Hardwicke*. 1s.

TWEMLOW. Firm Belief in the Deluge of Noah (without Restriction of Time), advocated by Major-General Twemlow, with reference to the Delineation in the *Geological Magazine*, for October, 1866, of Three Remarkable Flint Cores found below the Rock of the River Indus. No. 1. 8vo, sd., pp. 37. *Stent* (Guildford). *Simpkin*. 1s.

WATTS (Miss E.). *Poultry Yard*: comprising the Management of Fowls, for Use and Exhibition. A New Edition, with Illustrations by Harrison Weir. (Routledge's Books for the Country.) Fcp. 8vo, bds., pp. 172. *Routledge*. 1s.

WHATELY (E. Jane). *Life and Correspondence of Richard Whately, D.D., late Archbishop of Dublin*. With Portraits. 2 Vols. 8vo, pp. xxi.—971. *Longmans*. 28s.

WILBERFORCE (Samuel, D.D.). *Agathos, and other Sunday Stories*. With Illustrations. New Edition. Sq. cr. 8vo, pp. xvi.—120. *Seeleys*. 5s.

WORDSWORTH (Charles, D.C.L.). *Synodal Address*, delivered at Perth, September 11th, 1866. 8vo, sd. *Macmillan*. 2s. 6d.

SCIENCE.

THE BRITISH ASSOCIATION.

REPORTS.

Report of the Rainfall Committee. *

The Report mentioned one striking result deduced from the Rotherham observations by Mr. Baxendall, viz., that the rain fell at a mean angular deviation from the vertical of 55° in April, 52° in May, and 36° in June, the mean of the entire series (not the mean of the monthly means) being 42° 13'. A short outline of the rainfall in the last two years was followed by details of the mode in which Mr. Symons has been enabled to draw up tables and diagrams illustrating *approximately* the fluctuations in the amount of rain year by year for nearly 150 years.

Report of the Committee on Electrical Standards. †

The object of the committee was to obtain the best standards, and to put those standards into some tangible form. The matter was not confined to gentlemen in their laboratories, but it was one of great commercial importance, and he, Mr. Jenkin, considered it to be a very desirable thing that the committee should be re-elected.—Mr. Brook thought it exceedingly necessary that the standard should be one that would be easily reproducible—such, for instance, as distilled mercury.—Mr. Jenkin replied, that mercury had already to a certain extent been brought to bear by the committee.

Report on Isomeric Alcohols. ‡

Report on the Synthesis of certain Organic Acids. §

The author detailed the difficulties which had been encountered in getting an unexceptionable specimen of a normal Heryl-alcohol. He had tried the synthetical method which is commonly admitted by chemists, and found that that portion of it due to Mendius is quite satisfactory, whilst the part due to Hofmann fails. A modification of the method was proposed by the author.

Report of the Lunar Committee on the Mapping of the Moon. ¶

The author, after alluding to the former report at Birmingham, proceeded to notice the work which had been done in the interim. It was, in

* This Report was read by Mr. G. J. Symons in Section A.
† This Report was read by Mr. Fleming Jenkin, F.R.S., in Section A.
‡ This Report was read by Mr. J. A. Wanklyn in Section B.
§ This Report was read by Mr. A. R. Cotton in Section B.
¶ This report was read by Mr. W. R. Birt in Section A.

the first instance, proposed to construct an outline map of the moon's surface, 75 inches in diameter, every object entered on the register to be inserted in the map, and an outline map of that size was exhibited to the section at Birmingham; but in consequence of some remarks by the President on that occasion (Professor Phillips), it had been determined to construct an outline map of 100 inches in diameter, and Mr. Birt has now 30 superficial degrees of the moon's surface completed on that scale, and exhibited also an enlargement to the scale of 400 inches. In noticing the progress of this department, the author laid stress upon the materials available, particularly well-determined positions of the first order and existing photographs. Of the latter, only one, that by Mr. Warren Delarue, in October, 1865, enlarged to 10 inches in diameter, was accurately available, the time of its taking being so near that of mean libration. In mapping on this scale, Mr. Birt has commenced with the lower right quadrant of the visible moon; but over this area there are only 23 points of the first order for triangulation, which have been inserted with the utmost care and accuracy, the greatest error being only 8-10,000th of the moon's semi-diameter. Amongst the forms issued by the committee last year was one (No. 2) for aiding the formation of a catalogue of lunar objects by symbolising them, so that by means of these signs each parallelogram of five degrees of latitude and five of longitude is distinguished by a special symbol. Every object discernible in the photograph of October 4th has been carefully measured and inserted in quadrant IV.; and still further, a drawing of the tints of the ground markings indicating the reflective power of the surface only, was submitted to the meeting. This drawing permits of a useful comparison of the features of full-moon with earlier or later phases. Among the results thus obtained by Mr. Birt, we may note that two prominent rays of the familiar crater, Tycho, which are best seen at full-moon, are found by their aspects under other phases to be ranges of high land, in some places much broken, and in others rising into rocky eminences. This illustrated another point of importance in the construction of these maps—namely, that many important objects are, from the nature of the illumination, not distinguishable at full-moon, and therefore can be only inserted in proper position on the maps by measuring on photographs taken at other phases, or by personal observation.

Report on Luminous Meteors. *

This Report is chiefly interesting from the fact that the spectroscope has been brought to bear on meteors for the first time. The coming November meteoric shower is expected to be a very interesting one, and the charts of radiant points will be completed in time for use on that occasion. The spectrosopes were directed towards meteors on the 10th of August last, and seventeen spectra were observed. For this purpose, Mr. Browning had constructed three binocular spectrosopes on a plan approved by the Committee. No difficulty was found in mapping the course of the meteors in the spectroscope by the stars, of which a whole constellation—as, for example, the seven stars of *Ursa major*—can be seen in the instrument at a glance. The spectra of the meteoric nuclei were seen distinctly in a few cases only. They were commonly hidden by the light of the streak when that was yellow, and presented highly-coloured and continuous spectra, like the spectrum of white-hot solid matter when the streak was greyish white. A better night for observing nucleus spectra will be the 12th of December, when meteors leaving no trains are for the most part very brilliant. The observations of the August meteors appear to indicate the existence of an extraordinary amount of sodium vapour. As it is difficult to suppose that the vapour of the metal sodium already exists in any sensible quantity at the confines of the atmosphere, it must manifestly be brought into the atmosphere by the meteors themselves from without, so as to be deposited by them in their flight in the luminous trains that mark their course. The nucleus is, therefore, probably a fragment of mineral matter, of which sodium is one of the chemical ingredients.

Report of the Committee On the Resistance of Water to Floating and Immersed Bodies. ¶

The Report gave the results of 220 experiments, with two models, four feet in length. The Committee have deferred for the present deducing any general laws of resistance; but Professor Rankine stated that the results of the experiments led to the following general conclusions:—1st. That agreeably to what was previously known of the behaviour of small bodies at low speeds, the

* This Report was read by Mr. J. Glaisher in Section A.
† This Report was read by Professor Rankine in Section G.

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resistance increased on the whole somewhat more slowly than as the square of the velocity. 2nd. That when the velocity went beyond the maximum velocity suited to the length of the model, as ascertained by Mr. Scott Russell's well known rules, the resistance showed a tendency to increase at a more rapid rate. 3rd. In all cases the resistance seemed to be much more nearly proportionate to the mean girth than to the midship section. 4th. The resistance of model A when totally immersed to its own depth was almost exactly double of its resistance at the same speed when half immersed. 5th. The resistance of model B when immersed to about three and a half times its own depth, was sensibly more than double its resistance when half immersed.

In the discussion which followed the reading of this report, Mr. Bailey and Admiral Belcher having spoken with disapproval of hollow lines or wave-lines at the bows of sea-going vessels, Professor Rankine pointed out that the wave-line theory consisted of two branches, one relating to the form of the bows, the other to the relation between the length of the vessel and the speed at which she was propelled through the water. He did not attach much weight to the hollow bow, but thought that much was to be said in favour of the theory that the length should have a certain relation to the speed.

Report of the Committee appointed to Investigate the Alum Bay Leaf-Bed.*

The author went down to Alum Bay last September with Mr. Keeping, and remained there during the working to note the appearance of the leaves when first turned up. In the majority of instances, not only the outline, but the venation, even the most delicate, is at first clearly visible, though a few hours' exposure to the air almost obliterates the more delicate marks. A washing with a solution of isinglass often preserves them—indeed, in some instances it brings them out even more sharply, but unfortunately it often fails. There are some specimens on which I partly traced the venation with pencil as soon as they were exposed. Now, after an interval of ten months, they are so faded that the part not pencilled is hardly, if at all, to be made out. It is much to be regretted that there is a difficulty in preserving the specimens, and we shall be very glad to receive suggestions for their treatment. All our specimens have had the usual isinglass wash, which somewhat obscures the character of the surface of the leaves. In a fortnight the Committee succeeded in obtaining a good collection, numbering altogether some 470 specimens. The leaves are, on the whole, well preserved, but the bed in one part yielded forms so indistinctly marked as to be almost worthless. The author would use the word "form" where "species" is now universally employed. "Species" is applicable only to the entire plant; "form" is applicable to individual leaves. Dr. Mitchell exhibited photographs and drawings of some of the larger and more striking leaves; among them some fine compound leaves formerly only supposed to occur from isolated leaflets found; also some fine *Aralias*, *Dryandras* [or *Myricas*], *Taxites*, *Ficus*, *Laurus*, etc., and two curious forms supposed to be cones, with other particulars.

On the Statistics of the General Hospital, near Nottingham, by Mr. J. White.

This is a sequel to the paper read before the British Medical Association in 1852. The paper was divided into eight parts, the first showing the sex and diseases of the patients. During ten years there had been admitted 6,936 males and 4,880 females, being 100 males to 71.3 females, the figures agreeing with the returns from 15 other institutions. The returns of 10 London hospitals gave 100 to 75.7. The disproportion of diseases in one or two particular instances was very striking, 131 males and 229 females being admitted for diseases of the digestive organs, which he attributed to the sedentary occupations of the female population employed in lace and hosiery trades. For diseases of the eye there were 114 males and 181 females, the disproportion being caused by numbers of cases of scrofulous ophthalmia and affections of the optic nerve through close work in mending and embroidering lace. In the second part, referring to the ages of patients, the number admitted for burns and scalds was 270, there being of these 201 under 12 years of age, consisting of 67 boys and 134 girls. These injuries were almost invariably received in the absence of their parents, the nature of the employment either taking the mother from home or preventing her attending to household duties. Within the last ten years 484 males and 410 females were admitted labouring under diseases of the lungs, and of these 602 were between the ages of 15 and 30, the great proportion being 20 years and upwards. The ages from 30 to 40 yield the greatest number of deaths. The 3rd table referred to the duration of illness before entering the hospital, and the fourth to the time each patient remained there. The 5th indicated the result of treatment, according to which there were, of the 11,846 admissions, 649 deaths, or about 5.5 per cent.; 111 died of fever, 63 of diseases of the heart and dropsy, 130 of diseases of the lung, and 150 of accidents, including burns and scalds. The rate of mortality was below that of the London hospitals, and low as compared with provincial infirmaries. The 6th table classified the occupations of those admitted into the hospitals, from which it appeared that of the 6,936 males, 4,121 were engaged in the manufacture of hosiery and lace, and of the 4,880 females, 2,013 were similarly occupied. Of the accidents, there were more from the collieries and caused by threshing machines requiring serious operations than from the whole of the manufacturing population. The 7th table gave the admissions, the number being greatest from November to June, and smallest from July to October. It was very curious to notice that the approach of the fair and races, or of any holiday, had the effect of diminishing the number of patients. To these tables were appended some statistics of the hospital extending over the last 35 years, showing the stay of the patients, the cost of food, medicine, instruments, appliances, and other particulars.

[This paper was read in Section F.]

Section A.—MATHEMATICAL AND PHYSICAL SCIENCE.

On Certain Phenomena which presented themselves in Connexion with the Atlantic Cable, by Mr. C. F. Varley.

The author described the phenomena as examples of "Magneto-Electric Momentum," and he alluded to an experiment of Professor Henry, whose deductions his experience had confirmed.

On a New Method of Testing Electric Resistance, by Mr. C. F. Varley.

In 1860, Professor Thomson and Mr. Fleming Jenkin invented a method of obtaining exact subdivisions of the potential of a voltaic battery. Professor Thomson has recently succeeded in making reflecting electrometers of such sensibility that they will give 200 scale divisions for a variation of potential equal to one cell of Daniell's battery. In testing the Atlantic Cable this electrometer was used in the following way at Valentia, to get the potential of the ship's magnetism. The one pole of the electrometer was connected with the cable, and the other one with the slide, and by running it up and down the exact potential of the cable was measured. There were in the main slide 100 coils of 1,000 units each, and it became necessary to sub-divide these again 100 times to get sufficient accuracy. Some difficulty presented itself in getting a method for sub-dividing these coils, and the author described his method of effecting this purpose. By these means Professor Thomson has been able to introduce a simple method of testing, on the Wheatstone Balance system. The battery is connected permanently to the main slide, so that a current is always passing through it. Its resistance, 100,000 ohmads, is such that no sensible elevation of temperature is pro-

duced. The current is also passed into the cable through a definite resistance, R. At the junction between the end of the cable and the resistance R a key is attached, which is connected by either the reflecting electrometer or a reflecting galvanometer with the slides. The position is sought upon the slide which has precisely the same potential as that of the cable at the point where it joins the resistance R. If now the potential of the battery be represented by p , and the resistance of the junction of the cable with R be represented by p' , and if the two portions of the coil necessary to balance this potential be n and m , it will be evident, on the principle of the Wheatstone Balance, that $n : m : : R : \text{cable } x$ (the cable resistance). Thus, then, the resistance R being known, p and p' being known, and the resistance or position on the slide noted, the resistance of the cable is accurately obtained.

On a Property of Surfaces of the Second Order, by Professor H. J. S. Smith.

On Meteoric Showers considered with Reference to the Motion of the Solar System, by Professor Hennessy.

Remarks on a New Telemeter; a New Polarimeter; a New Polarising Microscope; and various Spectroscopes, by Mr. M. Hofmann.

On a New Anemometer, by Mr. L. Casella.

On Tables of Pairs of Stars for the Approximate Finding of the Meridian, by Professor Rankine.

Determination of the Mechanical Equivalent of the Thermal Unit by Experiments on the Heat Evolved by Electric Currents, by Mr. J. P. Joule.

On Certain Errors in the received Equivalent of the Metre, &c., by Mr. F. P. Fellows.

Section B.—CHEMICAL SCIENCE.

On the Action of Chlorine on Amylene, by Dr. Baner.

On some Phenomena connected with the Melting and Solidifying of Wax, by Mr. C. Tomlinson.

Mr. A. W. Williamson, F.R.S., who had succeeded the President in the chair, was glad to have heard the paper, for he thought, if there was one point in which they wanted information, it was upon the spontaneous movement of substances.

"Sur le Spectre de l'Atmosphère Terrestre et Celui de la Vapour d'eau," by Dr. Janssen.

The author recorded some very interesting experiments on the spectra of steam. In his experiments he employed an iron tube, thirty-seven metres long, filled with steam, of a pressure of seven atmospheres. The light was obtained from sixteen gas-jets. The spectrum showed five dark bands, of which two well marked answered to D and A (Fraunhofer), and reminded the observer of the solar spectrum seen in the same instrument towards sunset. According to the first comparisons made between the spectrum of steam and that of solar light it appeared that the group A of Fraunhofer, B (in great part at least), the group C, two groups between C and D, are due to the aqueous vapour in the atmosphere. The experiment gave another interesting result. The spectrum was very dark at the violet end, and brilliant in the red and yellow, showing that aqueous vapour is very transparent to the latter rays, and suggesting that it will appear orange-red by transmission, and redder according to the thickness of the layer. This result, the author states, requires to be verified with care, but if established, he says, it will explain the redness always observed at sunrise and sunset. M. Janssen hopes soon to be in a position to pronounce upon the existence or non-existence of aqueous vapour in the atmospheres of the planets and other stars. At present he is only able to say that it is not present in the atmosphere of the sun.

"Sur une Spectroscopie à Vision Directe," by Dr. Janssen.

Professor Tyndall said he had used a small spectroscope as mentioned by Dr. Janssen in his ascents in Switzerland. He had made observations on glaciers of snow, and dark lines had been shown in the solar spectrum, which Dr. Janssen had proved were aqueous vapours.

On the Nature and Properties of Ozone and Antiozone demonstrated experimentally, by Professor J. McGauley.

The Professor complained of his paper having been driven to the last day, stating that he felt it to be a great hardship, after having devoted so much time and attention to the subject. He then began to read his paper, and explain some instruments which he exhibited before the section; but the reading was not completed.

Preliminary Report on the Chemical Nature of Cast Iron †

Second Report on the Geology of St. David's, Pembrokeshire.‡

Second Report on the Fossil Crustacea.§

Report on Dredging among the Hebrides, with regard to Geological Considerations.¶

Second Report on the Maltese Caves.||

Supplementary Report of Experiments with Entozoa.**

* This report was read by Mr. W. S. Mitchell in Section C.
† This Report was read by Mr. A. Matthiesen in Section B.

‡ This Report was read by Mr. H. Hicks and Mr. J. W. Salter in Section C.
§ This Report was read by Mr. H. Woodward in Section C.
¶ This Report was read by Mr. J. Gwyn Jeffreys in Section C.

|| This Report was read by Dr. Leith Adams in Section C.
** This Report was read by Dr. Cobbold in Section D.

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On the Purification of Terrestrial drinking Waters by neutral Sulphate of Alumina, by Mr. A. Bird.

In a very few words the author showed by his process how water, and what sort of water, could be purified by alumina, and, at the rising of the section, he exhibited his water-barometer, and made two or three experiments upon it to the satisfaction of those who witnessed them. *The Popular Science Review* for October questions the accuracy of Mr. Bird's assertion, that the tersulphate removes all the organic matter from water. "When it is added to water which contains much organic colouring matter, it throws down this latter; but we doubt that its purifying action extends beyond this."

On the Muscular Force of Animals, by Dr. Lyon Playfair, F.R.S.

The author explained very clearly the different views of the subject laid down by Franklin and Baron Liebig. He gave the results of experiments which had been tried with feeding rats and dogs for a considerable time on meat totally free from fat, showing that nitrogenous substances could be made into muscular force. With regard to the amount of nitrogenous matter naturally consumed in food, it appeared that in the fare of soldiers of all countries the amount was 4.2 oz. for each man. The ordinary amount of work that a soldier performed might be estimated as raising 48,000 kilometres to the height of a metre. There had been much more done by the soldier, more especially during the late Prussian war and the forced marches of Sherman. The author of the paper then proceeded to describe the course of training pursued by the Cambridge, Oxford, and Hull boat-racing crews. In the discussion that followed, Dr. Edward Smith contended—1. That there was no *prima facie* ground for the division of foods by Liebig into heat-formers and flesh-formers, since the latter contain carbon and hydrogen like the former, which must be available for the production of heat. 2. That his experiments, as well as those of Voit, had proved conclusively that the emission of nitrogen was no measure of muscular waste, since with the most severe exertion the excretion of urea scarcely at all increased. 3. That the emission of carbonic acid is the true measure of muscular action, since he had proved in 1860 that the finger could not be kept in motion without increasing the emission of that product, and the emission increased as the exertion increased. He had in the same year called attention to this as the true measure of muscular action, and was the first to do so. 4. That whilst the experiments quoted by Professor Frankland went to show that the consumption of carbon and hydrogen was the source of muscular power—those of Fick and Wislicenus—were inconclusive, there was much reason to believe that the conclusions were not far wrong. They were inconclusive because the experimenters had taken the period of emission of urea to represent that of its formation; because the emission is at all times dependent upon the excretion of water by the kidneys, and must in these experiments have been lessened during exertion by the fact of much of the fluid passing out by the skin and so much less by the kidneys; because no accurate basis of comparison was obtained; and because the duration of the whole enquiry was too short.

On a Phosphatic Deposit in the Lower Green Sand of Bedfordshire, by Mr. J. F. Walker.

On the Assay of Coal, &c., for Crude Paraffin Oil, by Mr. John Attfield.

On the Poisonous Nature of Crude Paraffin Oil, and the Products of its Rectification upon Fish, by Mr. Stevenson Macadam.

Section C.—GEOLOGY.

On the Discovery of Ancient Trees below the Surface of the Land at the Western Dock, now being Constructed at Hull, by Dr. Foster, of Hull.

The paper stated, that at a depth of 40 feet below the level of the adjoining land, trees (almost entirely of oak) are to be met with in all positions, and are still *in situ*, having been broken off within three feet of the root. Some were of gigantic size. These trees could not be less than 3,000 years old.

The PRESIDENT remarked that the trees no doubt found were portions of a submerged forest.

On the Occurrence of Rhætic Beds near Gainsborough, by Mr. F. M. Burton.

The author identified the deposits in question (which used to be classed with Lias rocks) with the Rhætic beds of the Continent, and the observations are of much value, as extending the deposit so much further to the northwards.

Mr. ETHERIDGE stated that this reclassification of a portion of our own formation was of the very greatest value.

Sir R. MURCHISON observed that it might, indeed, be justly termed a new discovery. The beds here might be of small extent, but they were always rich in fossils; the great point, however, was their identification here with those extending over the European Continent, and even with Asia.

On Eight Years' Researches in Asia Minor, by M. de Tchihatchef.

It appeared from the paper that its most enterprising author had journeyed over twenty-one thousand miles in rambling to and fro over the classic regions of Asia Minor, occupying himself, year after year, in observations, including, we might almost say, every department of scientific research, botanising on the surface and exploring below geologically. In every branch of observation most valuable additions had been made to previous knowledge respecting these ancient and beautiful districts, the full peculiarities of which are to be laid before the public in a voluminous work. The paper, from its extent, and the multiplicity of its details, scarcely admitted of condensation; but we may observe that these extensive and long-protracted journeys were made by M. de Tchihatchef at his own expense entirely.

On Petroleum and Bitumen in the Valley of Pescara, by Professor Ansted.

The author described the intermittent discharges of petroleum, and large deposits of bitumen in the valley of Pescara, Italy. He observed that the rocks near the valley were limestones, overlying shales, the limestones being much broken, but more or less horizontal, and the shales nearly vertical. The limestones were cavernous, and bitumen exuded freely from the exposed faces, wherever there were cracks, springs of water issuing in abundance during part of the year. A couple of miles south of the valley, there were water courses, and from openings in the rock below, large bodies of water sometimes, issued when rain had fallen, water mixed with much petroleum coming out of one. When the Professor visited the spot, he saw about 1,500 gallons of the liquid collected in two days, of which, perhaps 1,000 gallons would be available petroleum, yielding valuable light, heavy oils, and asphalte in distillation. At Letto, in an area of five miles radius there were enormous deposits of bitumen and much sulphur, and, on careful distillation, the bitumen yielded, on an average, 55 gallons of crude oil to the ton.

On the Island of St. John, in the Red Sea (The Ophiodes of Strabo), by Dr. Beke.

On the Miocene Flora of North Greenland, by Professor Oswald Heer.

Observations on, and Additions to, the List of Fossils found in the Boulder Clay of Caithness, N.B., by Mr. C. W. Peach.

Section D.—BIOLOGY.

On the Distribution of Mosses in Great Britain and Ireland as affecting Geography and the Geological History of the present Flora, by the Rev. H. B. Tristram.

The paper touched upon the probability that at some remote period there existed a land communication between Ireland and Spain, an opinion founded upon the fact that there are a number of plants peculiar to the south-west corner of Ireland, which are found there but not in Great Britain, while they belong properly to the Spanish flora. Several lists of mosses were also given, and a comparison made of the relative heights at which Alpine plants grow in Scotland and on the Alps, and the conclusion drawn, that owing to the influence of the Gulf stream, the most northern parts of Scotland did not produce Alpine plant, or but rarely, while even those plants growing on the highest inland mountains were sensibly affected by its influence, and, in many instances, in a dwindling state. A few remarks were offered by the reader on some researches of his own, on the border land of England and Scotland, relative to the respective heights at which the *Pinus sylvestris* flourished, and the discussion then dropped.

On the Marine Flora and Fauna of North Devon and Cornwall, by J. Gwyn Jeffreys.

On Dredging in the Mersey and the Hebrides, by Mr. J. Gwyn Jeffreys.

The principal results arrived at in these papers were that the depths at which plants and animals were found did not necessarily affect their colour, that animal life extended lower than vegetable, and consequently those animals that lived on animal food lower than those which lived on vegetable food. In the case of one of these species of Molluscs, the President suggested that it was probable that the creature lived on the surface of the water, and only sank to the bottom when dead,

in which state we obtained it. This was borne out by the remarks of another speaker.

On the Systematic Position of the Prong-horn (Antilocapra Americana), by Dr. P. L. Sclater.

This animal had been classed with the Bovine, but in reality belonged to the Cervidae, as the author demonstrated by the nature of its horns, the shedding of which had been watched by Mr. Bartlett, of the Zoological Gardens, London, and by Dr. Canfield, in America. A skull of the animal was exhibited with the horns attached to it, in the state they were just before being shed. The President remarked upon the division of the Ruminantia made by Dr. Sclater.

On a Remarkable Mode of Gestation in an Undescribed Species of Arines, by Mr. W. Turner.

The male of this fish, it appears, carries the ova, as soon as they have been deposited by the females, in its mouth until such time as the young fry are able to shift for themselves. Specimens were exhibited in jars.

Dr. LAYARD stated, as custodian of the Museum of the Cape of Good Hope, he had heard of a species of fish which grew to the size of two hundred pounds, which hatched its young in a similar way.

On the Food and Economical Value of British Butterflies, by Mr. O. Groom Napier.

On the Causes of the Variation in the Eggs of British Birds, by Mr. O. Groom Napier.

The first of these papers provoked a discussion, and amongst those who took part in it were Dr. Davy, Dr. Largen, and Mr. Stainton.

On the Structure of the Ovarian Ovum of Gastrophorus Leiurus, by Dr. Ransom.

On the Question, Whether Carbonate of Lime exists in an Amorphous or Crystalline State in the Egg-shells of Birds, by Dr. John Davy.

The author gave his observations, which led him to conclude that the condition was amorphous. In the discussion which followed, Mr. Charles Stewart, of Plymouth, maintained that the polariscope revealed a crystalline structure in what Dr. Davy regarded as amorphous particles.

Remarks on the Rhizopoda of the Hebrides, by Henry B. Brady, F.L.S.

The author presented a few points concerning the Foraminifera contained in Mr. Jeffrey's dredgings in the Hebrides. He proposed merely to touch on the subject, leaving details to a future paper, when he should have had time to conclude his examination of the material. Of the total number of species and tolerably permanent varieties hitherto numbered in the British fauna—which might be regarded as 121—seventy-six had occurred in the Hebrides dredgings. In addition to these, a new *Lagena*, having an acerose surface and spiral ornament round the neck, had been found, which he proposed to call *L. Jeffreysii*. A specimen of *Lagena crenata*, P. and J., hitherto only known as a Tertiary fossil, and *L. gracillima*, Seguenza, which could scarcely be said to have been recorded from a British locality, were noticed, and three other species, viz., *Hauerina compressa*, d'Orb., *Christellaria cultrata*, Mont., and *Marginalia Raphanus*, Linn. The distribution of the different families of the Rhizopoda in the area dredged was found to be as follows:—Of the twenty-one species of *Miliolida* inhabiting the British seas, eighteen were obtained, and the whole of the six species of *Lituolida* were found most of them in considerable abundance. Of the *Lagenida* 23, of the *Globigerinida* 23, and of the *Nummulinida* 17, had been noticed, but it was probable that further search would increase these numbers.

On the Results of the Cinchona Cultivation in India, by Mr. Clements R. Markham.

It appeared that this tree, whose bark, as is well known, is medicinal, has been successfully introduced into that country.

Dr. HOOKER remarked that Mr. Markham had laid humanity and India in particular under increased obligations by forwarding the plants from America to India.

On the Scientific Cultivation of a Salmon River, by Mr. F. Buckland.

The author remarked on the distance which salmon would travel from the sea to rivers in high mountains for the purpose of depositing their spawn. They went, for instance, from the German Ocean up the Rhine and Schaffhausen, a distance of 400 miles, and would perhaps go much further were they not stopped at that point. He strongly condemned the obstructions which prevented the salmon from passing up our rivers, viz., weirs, mills, locks, &c., and pointed out how easily the evil

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might be remedied by the system of fish ladders. They were sometimes stopped by a net, and at other times were attacked by the seal. "If," said Mr. Buckland. "I have an enemy it is the seal." [Laughter.] When young, too, salmon were killed by herons and cormorants, not always from hunger, but for the mere sake of sport. The miller, however, was the great rascal, stopping the fish by his water wheels. Mr. Buckland proceeded to describe the measures that had been taken during the past few years for the breeding of salmon in our rivers, from which he looked eventually for important results.

On Comatula Rosacea, C. celtica, and other Marine Animals from the Hebrides, by Dr. Carpenter, F.R.S.

On the Probable Cause of the Existence of a North European Flora in the West of Ireland, as referred to by the late Professor E. Poates, by H. Hennessy, F.R.S.

On the Dentition of the Common Mole (Talpa Europaea), by C. Spence Bate, F.R.S.

Notes on Lithosia Caniola, with Reference to the Question of its Origin as a Species, by E. Perceval Wright, M.D.

A Few Thoughts, Speculative and from Observation, on Color and Chromula, by Mr. J. J. Cleater.

On the Occurrence of Lemna arrhiza in Epping Forest, by Mr. W. Moggridge.

On the Zones of the Coniferae from the Mediterranean to the Crest of the Maritime Alps, by Mr. W. Moggridge.

Section D—DEPARTMENT OF PHYSIOLOGY.

Demonstrations of Local Anæsthesia, by Dr. Richardson, M.A., M.D.

Dr. Richardson gave a series of demonstrations of his new mode of producing local anæsthesia by narcotic spray. He used a large and improved diffusion-tube made for him by Krohne and Sessmann, and various volatile fluids—viz., ether, nitrate of ethyl and ether, chloride of methyl, methyl alcohol, and a paraffin ether possessing a boiling point of 60° Fahr. Having laid bare his own arm, the author rendered four inches of surface rapidly insensible, and passed needles through the flesh very deeply and easily, without pain. Mr. Grove, the President of the Association, next laid bare his arm, and was subjected to a similar experiment with perfect success. Dr. Richardson described briefly the course of inquiry which led him to this method, and in this part he referred with special care to the previous and all-important labours of Dr. James Arnott. He next dwelt on the apparatus employed, and explained that, as far as the present principle was concerned, he considered the details were now nearly perfect, and by its operations of the most extreme kind could be painlessly performed. The large tube he had exhibited covered more than six inches of surface with spray, and rendered that surface insensible. In respect to the volatile fluids, he was yet content with absolute ether; true, with the paraffin fluid he could produce perfect insensibility with three blasts of the bellows, but the effect was limited as to surface, the insensibility was transient, and there was often irritation and redness afterwards.

After giving a demonstration with the styptic ether spray, and describing that no ill effects of a serious kind followed the local anæsthetic method, and which in itself was perfectly safe in regard to life, Dr. Richardson passed on to consider certain subjects of a physiological character purely:—1. He fixed the freezing point of the tissues of the body at 16° Fahr. 2. He described the heat of fluidity of the various tissues, and assigned to the red corpuscles the function of fixing heat in the pulmonic circuit of blood. 3. He stated his conviction that the force with which the body is charged, and by which sensibility is sustained, is a form of heat. 4. He contended that the general and the local methods of producing anæsthesia were actually the same in principle. Both acted by removing the heat of sensibility; but when a general anæsthetic was employed, it, by depriving the blood of heat in the lungs, and afterwards the brain of its required force, cut off the brain from the rest of the organism, while, when a local anæsthetic was used, it cut off simply the force of sensibility that was resident in that part itself. The author concluded by explaining the various operations on horses and other inferior animals which had been performed painlessly by the Messrs. Mavor under his method of anæsthesia.

On the Movements, Structure, and Sounds of the Heart, by Dr. Sibson, M.D., F.R.S.

The author's experiments on the movements were made on the ass under the influence of

wourali, assisted by Mr. Shepperly, and on dogs subjected to chloroform, assisted by Dr. Broadbent and Mr. Edwards. The contraction of the ventricles takes place in every direction towards a region of rest, which, in the right ventricle, corresponds with the anterior papillary muscle; in the left ventricle, with a situation about midway between apex and base. The movements of the right ventricle are very striking. The base moves extensively from right to left, the septum slightly from left to right; the origin of the pulmonary artery descends, and the lower boundary of the ventricle ascends; the apex and base of the left ventricle approximate; its posterior walls advance considerably, and its left border moves to the left, and with a twisting motion from behind forwards. This twisting motion corresponds with a revolving movement of the apex. Simultaneously with this universal contraction of the ventricles, there is universal distension of both auricles, the pulmonary artery, and the aorta. The distended auricles and vessels step into the place left vacant by the universal retraction of the ventricular base. The total amount of blood contained in the heart and great vessels is the same during both systole and diastole. During the ventricular contraction, however, the distribution of the blood, lessened towards the region of the apex, balances itself by being increased in that of the base, since the auricles and great vessels are enlarged, not only towards the ventricles, but also outwards and upwards. During ventricular dilatation the reverse takes place. When the animal lies on its back, the anterior walls of both ventricles advance during systole, but when on its side they recede. If, however, a fixed prop be then placed behind the base of the left ventricle, the front walls again advance. This advance takes place even to a greater extent, under the like circumstances, when the veins cavae are tied, and the ventricles contain no blood, and also when the anterior wall of the right ventricle, the septum, and papillary muscles are successively removed. This advance of the ventricular walls when their base is supported either naturally or by an artificial prop, is due to a lever movement. When the fingers are applied upon the front, the side, or the apex of the ventricle, or when they grasp both of its sides, during systole they are in each instance propelled outwards to a considerable extent, and that although at every part except the front the wall itself then retracts. This propulsion of the finger is very much lessened, though not quite obliterated, when the blood is shut off from the heart, and it is due, to a slight extent only, to the muscular rigidity of the walls over the front of the heart, slightly to the lever movement, but mainly to the outward pressure of the blood contained in the cavity. Thus pressure caused by ventricular contraction is equal in every direction, and is, therefore, as great on the walls as the outlets. The author then described the structure of the cavities, valves, and muscular walls of the ventricles, and concluded by recounting his experiments on the sounds of the heart, and giving his explanation of their causes.

On the Presence of Ammonia and its Homologues in the Blood, by Mr. W. L. Scott.

Section D.—DEPARTMENT OF ANTHROPOLOGY.

On Saracens in France, by Dr. Gustave Lagneau.

This paper elicited some remarks on the existence of leprosy in certain localities in that country.

On the Traces of an Irish Lake Dwelling, found by Capt. L'Estrange, by Professor Tennant.

The Professor exhibited some articles found in a lake dwelling in Cavan. He read a letter from Capt. L'Estrange, stating that some bones were found, and charcoal, but no metal implements, except a piece of cast iron. The piles were chiefly of oak.

Mr. S. EVANS remarked that there were lake dwellings in Ireland down to a far later date than in other parts of Europe. The poet Spencer mentioned them in his description of Ireland.

Mr. TYLOR said he believed lake dwellings existed down to the time of Cromwell.

The PRESIDENT (Mr. Wallace), Mr. PENGELEY and other gentlemen, urged the importance of a scientific investigation of lake dwellings wherever discovered.

On Flint Implements from Drift of the Little Ouse Valley, in the part separating Norfolk and Suffolk, by Mr. H. Prigg.

In the gravel bed pits near Thetford and Brandon, a large number of flint instruments had been found, together with the bones of extinct mammals; and the paper described at length the specimens found, and also the physical outline of the

country. No specimens were, however, forthcoming.

Mr. WYATT, whilst admitting the value of this paper as a record of a further site where the post glacial deposits yielded these ancient tools, urged the importance of having perfect sections drawn, and the whole of the phenomena well examined. In the consideration of a case of this kind, where the sections were perfect, land and fresh water shells were the strongest evidence of the antiquity of the implements, and it was to be regretted that in this instance none were forthcoming, as they, together with the species of fossil mammals, and the implements, were necessary to be examined before any opinion could be consistently and safely formed as to the antiquity of the deposits. He said this in respect to the requirements of this section, more especially as he had already been able to see good evidence in these points. He knew the site, and had seen specimens of the implements, and was of opinion that the deposit was contemporaneous with the high level gravels of the Ouse Valley and St. Acheul. Some of the tools were counterparts of those which he had found near Bedford, and others closely resembled some he had seen from Amiens.

Mr. FLOWER described fully the Thetford sections, and said he agreed with his friend Mr. Wyatt in respect to the types of the implements. He then said he had observed a flattened part in many specimens, evidently left in order that the ball of the thumb might be placed upon them. He believed they were used as hand spades or hoes for digging up roots or other rude husbandry.

On Flint Implements recently Discovered in North Devon, by Mr. H. S. Ellis.

The author exhibited specimens.

Sir J. LUBBOCK suggested that some of the pieces of flint were probably used for drilling holes, and others for slingstones.

Mr. WYATT said these flint implements which had been found in a submerged forest-bed, were of a much later epoch than that in which the first described implements were used, and they must on no account be regarded as similar.

The PRESIDENT remarked that if there was an exceedingly long period during which mankind existed all over Europe without any weapon except such as he could make from flints or stones, there could be no surprise as to the discovery of so large a number of those weapons. They must have been necessary to his existence, and for every weapon used twenty were probably spoiled, and hundreds of flakes must have been struck off. The wonder was rather, therefore, that they were not found everywhere, and it might probably be eventually concluded that districts where no flint weapons were found were not inhabited at all during the stone age.

On the Anthropology of Lower Brittany, by Dr. Paul Broca.

The author contended there were two races in France, one tall, the other short, the line of separation corresponding to that which in the time of Cæsar divided Celtic from Belgic Gaul. The inhabitants of the cantons of the latter were short in stature, and of a type corresponding to the Cornish.

Mr. EVANS believed the two tallest nations in France were thus descended from the old pirates, and that living over the sea had much to do with height.

Professor HUXLEY contended that length of limb and height were not adapted to a seafaring life, and that light, lithe, active people made the best sailors.

On the Anthropology of Caracas, by Mr. A. Ernst.

The author said it was difficult to give information concerning the number of inhabitants belonging to the mixed races, as all were "Cindadanos," and the law did not recognise a difference of race. A difference, however, existed in society, and it would, perhaps, never completely disappear. There were all shades of colour, from the deepest black to the almost perfect white, so that colour was not a good criterion. There was more security in the hair, the tint of the nails, and the colour of the organs. The son of a white father and a negro mother was called "mulato," while the son of a similar father and an Indian mother was termed "zambo." When a man of mixed blood married a woman darker than himself, and his children thereby became further removed from the white tint, it was said to be "un salto atras." The mixed races were virtually the ruling part of the population, and no doubt would be for a long time.

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On the Habits and Manners of the Marvar Tribes of India, by Dr. Shortt, Superintendent of Vaccination at Madras.

The dress and mode of piercing the ear-lobes among the women, and the ceremony of installing the present rannee in the Zemindary, were particularly dwelt upon.

On the Manners and Customs of the Fishing Indians of Vancouver's Island, chiefly as typified by the Sougish Tribe, by Dr. E. B. Bogg.

The writer observed that the Sougish Tribe, at once the smallest and most degraded, dwelt in and around Victoria, the capital of the island. Amongst other things, the language of the people was adverted to, the doctor describing it as a collection of K's and Q's, gurgled in the throat in a manner that would lead uninitiated persons to suppose that the speaker was about to vomit. Yet to that strange language they could give so peculiar an utterance, as to be heard for several miles through the silent forests. Her Majesty's ship *Devastation* went to the west coast to seize some Indians who had murdered an agent, and it was subsequently ascertained that the exact hour of its departure from Victoria and its destination were known to all the west coast tribes within four hours of the weighing of the anchor. The intelligence must have been communicated through the forest, from one tribe to another, as the distance was much too great for any other mode to have been adopted.

On certain Celts from Dumfriesshire, by Dr. Grierson.

One class consisted of perforated stones found in the locality, and many are hung up in byres and stables as a charm against witchcraft. Another class was composed of stones not to be found in the district, and in some instances he believed not in the British Isles. The character and workmanship of these were very superior to the former. The author concluded therefore that the two classes belonged to different races and periods.

Dr. HUNT doubted whether the Celts differed from those found throughout Scandinavia. Danish investigators fixed the limits of the stone age as at least 5,000 years ago.

Mr. BLAKE said there evidently existed in early times modes of diffusion of stone from one place to another, for in Belgium 30,000 flint flakes and nuclei were found in a cave, which must have been brought 30 miles, and pieces of felspar, which must have been carried 180 miles.

Mr. WALLACE thought it was not surprising to find stones not indigenous to the locality, for savage tribes at the present day thought nothing of travelling several hundred miles to procure articles which they wanted.

On the Dyaks of Borneo, by Mr. E. P. Houghton.

The author stated the people had small families, and parents did not know the age of their children. There was only a vague idea of a future life.

The PRESIDENT assigned the heavy labour thrown on the women as the cause of their bearing so few children. The people had no bow and arrow, and no weapon to kill animals or birds at a distance except a spear. They had no notion of counting, and when he asked a man, evidently upwards of 60, what his age was, he replied 20, while he took himself (Mr. Wallace) to be 70, probably on account of his beard.

Dr. HUNT thought small families were incident to all savage tribes.

Dr. GRIERSON did not believe any savage tribes were utterly destitute of religion.

Sir J. LUBBOCK thought the testimony of all observers who had actually come in contact with the most degraded tribes went almost unanimously to show that they had no form of religion.

Mr. TAYLOR believed that modern researches had reduced the number of races supposed to be without any religion. There used to be a dozen or twenty, some of which had turned out to have curious mythologies. Sir S. Baker, however, related his conversation with a Latuka chief, who argued that when a man was dead there was an end of him.

On Ancient Peruvian Hieroglyphics, by Mr. Bollaert.

The author described the recently-discovered Peruvian figurated writing.

On Two Extreme Forms of Human Crania, by Professor Huxley.

The first was the skull of an adult form from the collection of the Royal College of Surgeons, and exhibited unusual breadth and round, the breadth

being $\frac{9}{10}$ of its length. It was arched, and the jaws did not project. The palate was short and broad, and the suture joining the two parietal bones was completely obliterated, the other sutures being still open. The second skull was said to have come from New Zealand, but of this Professor Huxley was doubtful, as it did not present all the features of the Australian type. It was the narrowest skull, in proportion to its breadth, that he had seen recorded, the breadth being only $\frac{7}{10}$ of the length. The first was arched and dome-like, and the contours almost semicircular, whilst the second had compressed and wall-like sides, and was roofed in like a house. The occiput of the second was remarkably flattened, the jaw projected very far, and the palate was very long and broad. Although there was a great deal of dissimilarity, the two agreed in certain particulars. The length of the basi-cranial axis was nearly the same, so that it may be concluded that the length of the axis of a skull has no necessary relation to its absolute or relative breadth.

Section E.—GEOGRAPHY AND ETHNOLOGY.

On the North Atlantic Telegraph, by J. Holmes.

The magnitude and serious nature of the transmitting difficulties existing in all long unbroken sea lines, has led to the construction of what is known as the Russian-American line—a land line of telegraph intended to reach New York from St. Petersburg by wires through Siberia and on to San Francisco, with a short sea section across Behren's Straits, a total distance of about 12,000 miles. This Russian-American line is already far advanced towards completion; but by far the most important line of telegraphic communication between England and America is that to be immediately carried into effect *via* Scotland, the Faroe Islands, Iceland, Greenland, and the coast of Labrador, and known as the North Atlantic Telegraph. A glance at the map in the direction pointed out will at once show that convenient natural landing stations exist, breaking up the cable into four short lengths or sections, instead of the necessitous employment of one continuous length, as between Ireland and Newfoundland. It will also be found that the aggregate lengths of these sections is within a very few miles the same as that of the Anglo-American cable. Not only will this subdivision of the cable reduce mechanical risks in submerging, but, what is of far more importance, the retardation offered to the passage of the current through the several short sections is almost as nothing when compared with that of the unbroken length of 2,000 miles. Speed of transmission is obtained, and by that means a reduced tariff for public transmissions over the wire; indeed, such will be the advantages gained in this respect that the present rate by the Anglo-American line of 20s. per word, will be charged on the new route at 2s. 6d., or even a less sum. In examining more closely the nature of this intended Northern line, it will be found that the lengths of the several sections of cable between England and America are as follows:—Scotland to the Faroe Isles, 250 miles; Faroe to Iceland, 240 miles; Iceland to Greenland, 750 miles; Greenland to Labrador, 540 miles; or in round numbers about 1,780 miles. The several lengths of cable will be connected together by special land lines through the Faroes (27 miles), and in Iceland (280 miles), and a length of about 600 miles of land wire to be erected in Labrador, will complete the circuit with the existing American system on to New York. The average depth of the ocean between Scotland and the Faroe Isles is only 150 fathoms, the greatest depth 683 fathoms. Between the Faroes and Iceland 250 fathoms, with about the same maximum depth. Between Iceland and Julianshaad, the intended landing place of the cable in Greenland, the greatest depth is 1,550 fathoms, and between Greenland and Labrador rather over 2,000 fathoms. These lengths of cable and depths of ocean are both not only navigable, but practicable, and no difficulties in the working exists that are not already known by reference to the practical working of existing cables under the conditions of similar lengths and depths. As regards the presence of ice, it must be remembered that it is only at certain seasons of the year that the southwest coast of Greenland is closed by the ice, at other times this ice breaks up, and the coast is accessible to the Danish and other trading vessels frequenting the port and harbour of Julianshaad, the proposed station and landing place of the cables, and at such times the cables will be laid. Reference to the depth of the soundings up the Julianshaad fjord will at once indicate the security of the shore ends of the cables from interference from ice when submerged. The landing places of the cable in Iceland are likewise in no way liable to be disturbed by ice of such a nature as to cause damage to the cable; and on the Labrador coast, the risk of injury to the cable cannot be considered

greater than that to which the Anglo-American shore ends are exposed in the vicinity of Newfoundland Bank. In stating these facts, it must be remembered that the officers of Her Majesty's Government in the "Bulldog," in 1860, accompanied by the "Fox," screw steamer, made surveys of the intervening seas and landing places, charts of which were published by the Admiralty.

On some New Facts in Celtic Ethnology, by Mr. H. H. Howorth.

After some able remarks on the distinguishing characteristics of the Irish, Gaelic, and Manx languages, the author said:—These three languages are generally classed together as forming one grand division of the Celtic tongue, and there can be no reason for disturbing this arrangement. Cornish and Armorican are more nearly related to Irish than Welsh is; Cornish especially is remarkable for the number of its words and forms thus allied, a fact Mr. Norris has not failed to notice in his edition of the Cornish plays. Cornish may be placed half way between Breton and Welsh, and most of its grammatical idiosyncrasies may be referred to the former language for analogy. It is greatly corrupted with English, and we cannot wonder at this when we remember the stage in its history when most of the materials we possess for its study were collected, namely, when it had been driven into the remoter corners of the country, and was an expiring language. Many words in it are related to Basque, and many related to the peculiar idioms of modern Spanish; many are also unmistakably derived from Anglo-Saxon sources; and lastly, there are a few whose relations are very obscure, and may perhaps be Semitic. Unless Cornish has changed much more than Welsh since the 10th century, it must even then have been a well marked and distinctly separate dialect. And *Giraldus Cambrensis* offers explanations for the differences existing in his day. Breton, in its terminations and pronunciation, brings us in much closer relation to the corrupt Basque of the French provinces. Its orthography and grammar have many points in common with them, and its vocabulary is largely recruited from the same source. The intermediate dialect of Gascony is the connecting link; a large list of the words of this latter collated with Irish forms may be found in the preface to *Lluyd's Archæologia*, and these again are to be found in Breton. In several respects Breton has more intimate relations with Irish than either Cornish or Welsh, and on the other hand the most cursory examination will show how strongly infused is its other element, much more so than it is in the Erse. As might be expected, Breton is also corrupted with French forms, and in some districts is little more than a mixed jargon of both languages. Its purest form is perhaps to be found in the departments of Finisterre and Morbihan in Lower Brittany. But even here we find a large element derived from the Romance languages around, and many cases no doubt imported into the language from the Latin direct during the Roman possession of Gaul.

Welsh has two well marked dialects—those of North and South Wales—the one with its centre in Merionethshire, the other in Pembroke and Carmarthen, the boundaries of each being those of the ancient Grwymedd and Dekenbarth. The difference consists in pronunciation and in the use of various terms peculiar to each district.

The Basque language, has been proved beyond all question by William Humboldt, to be the tongue spoken by the ancient Iberians of Spain and of the Mediterranean border. The language mixed and conglomerated with the Celtic was the language of Celtiberians in Spain and of the Aquitanians in Gaul. The descendants of these Aquitanians are the modern Gascons, retaining in their dialect the dual element of Iberic and Celtic. The frontagers and neighbours of these Gascons at present are the Bretons of Brittany, or, as they call themselves, the "Brezonc." The presence of the dual element here too, though in a much weaker form, point to these latter as being the ancient as well as the modern frontagers of the Aquitanians; points in fact to their being the Kelts of Caesar and Strabo.

The Welsh traditions and the Welsh history cannot be understood without the key they themselves furnish to the ethnology of pure Roman Britain. They everywhere describe it as the scene of the internecine struggle of two not distantly related peoples, the Lloegrians and the Cumbri; the former retiring before the Saxons of the South into Devon and Somerset; the latter, opposed to the great Northumbrian invasions, retiring into Strathclyde, Cumberland, Lancashire, and Wales. The presence of the Cornish and Welsh in two of the districts of refuge confirms this tradition remarkably. During these early

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struggles we constantly read of the attacks of Irish invaders in Anglesea and Gwynedd generally.

The struggle of Lloegrian Cumri in Britain has its analogy in the struggle between Celt and Belgian in Gaul, of which many hints may be found in Caesar and elsewhere. The emigration of the Gaelic tribes to Scotland from Ireland is equally testified by tradition, by history, and by evidence of language. The same may be said of the inhabitants of the Isle of Man. The presence of the Lowland, Strathclyders, and Picts as frontiers will explain, in part, how the Welsh element in the language has been introduced. First Shetland and Orkney, without cavil, may trace to the Vi-kings their Norse peculiarities, linguistic as well as psychological. Then the position of the Isle of Man will be a sufficient reason for its language having Welsh elements in it. Lastly we come to Ireland, and, in trying to find one fact amidst its labyrinths of traditional fable, there is none that seems so well proved and so generally acknowledged as the one which agrees with the conclusion of this paper, namely that Spain has been the home of at least one of its many peoples. From Spain the Milesians, so dear to Irish pride, are said to have come, and thence the Roman writers too brought her population. Irish is a Celtiberian tongue, in which Celtic, no doubt, predominates, and this being so, either Spain or Aquitania must be chosen as the line whence the Irish Scots emigrated.

Section G.—MECHANICAL SCIENCE.

On the Treatment of Melted Cast Iron and its Conversion into Iron and Steel by the Pneumatic Process, by R. Mushet.

In the year 1815, the author said, my father, the late Mr. David Mushet, took out a patent for the manufacture of refined iron, direct from the blast furnace. For this purpose, he erected a small blast furnace thirty feet high, blown by means of three tuyeres, with a pressure of blast about $3\frac{1}{2}$ pounds per square inch. These tuyeres were arranged so as to dip down upon the surface of the melted iron in the hearth of the furnace, and when the hearth was full, or nearly full, the tuyeres were partially below the surface level of the melted iron. There was no difficulty experienced in keeping the melted iron in a liquid state in the middle of the hearth, but round the sides the refined iron chilled and formed what is technically termed "scull," and this rendered it very difficult, and sometimes impossible to tap the furnace, and run off that portion of the metal which retained its fluidity when the tapping took place, the metal issued from the furnace intensely heated, and throwing off the most brilliant scintillations. The temperature of the metal, like that of ordinary refined iron, was far higher than that of pig iron under the regular working of a blast furnace. The pigs of metal obtained were perfectly solid, showing, when broken, a dense white steely grain. They were so strong as to bend before they broke, and occasionally they could not be broken at all, though struck by the heaviest sledges, wielded by the most powerful men. The metal was, in fact, crude cast steel, and when annealed, was susceptible of being forged at a low heat to some extent. The defect in this process was that, as in the refinery, the waste of metal was excessive owing to the surface action of the blast upon the melted iron for a prolonged period. The difficulty of keeping the hearth open, and of tapping, arose merely from the small eye of the furnace and earth, and weakness of the blast. The iron was, however, decarbonized so as to be in the condition of crude cast steel, but too highly oxygenated to be forged into bars of commercial value. The experiment I have described was, I believe, the first practical step taken in the development of the Pneumatic process, though it was certainly not undertaken with any idea of producing either malleable iron or steel by that process, but simply a highly decarbonized refined metal. About the year 1850, I made experiments with some very highly blown refined iron from the Parkend Ironworks, in the Forest of Dean, and found that when alloyed with manganese, this refined metal could be forged into sound bars of very hard steel, too hard for any practical purpose, but, nevertheless, solid and free from seams or flaws, indicating if the iron could be sufficiently decarbonized whilst in the melted state. Steel of marketable quality might be obtained by simply adding some metallic manganese to the decarbonized metal. In the Autumn of 1856, Mr. Henry Bessemer read a paper at a meeting of the British Association at Cheltenham, which, whilst it filled the scientific as well as the practical world with astonishment, did not in the least surprise me, except in the one circumstance of its being possible to maintain a tuyere beneath a heavy column of melted cast iron. That, indeed, appeared to me most sur-

prising, as I was well aware of the highly destructive action of the iron stag which is generated by the action of atmospheric air upon melted cast iron. However, what I considered impossible had actually been accomplished by Mr. Bessemer, and the first great advance towards rendering steel as cheap as iron had been inaugurated by that gentleman. Mr. Bessemer's process consisted in forcing air through melted cast iron by means of tuyeres situated beneath the surface of the melted iron. When melted cast iron is subjected to this process, the silicon contained in the iron is first combined with the oxygen of the blast and thrown to the surface as a light frothy slag. Next, the carbon of the melted iron enters into combustion, and lastly, the iron itself is attacked and consumed with the development of an intense temperature, sufficient to keep the iron, though freed from carbon, in a perfectly liquid state. When the silicon and the carbon have been nearly or wholly eliminated from the cast iron operated upon, the product obtained is either crude cast steel or iron, according to the decarbonization arrived at. Ingots cast from this metal are more or less unsound, and when forged they frequently crack or break off, owing to their red shortness, and are wholly unfit for the requirements of commerce. Moreover, whenever the melted cast iron operated upon contains sulphur and phosphorus to any notable extent, the decarbonized iron is found to be so crude and brittle that it cannot be forged at all, and is, in fact, less valuable than the pig iron from which it has been made. Hence only the *purest cake pig iron of Great Britain* are at present suited for Mr. Bessemer's process, and these are comprised in the Hematite pig iron, the Weardale Spathose iron, on the Forest of Dean pig iron, and the Blanavon and Pontypool Welsh brands, the two latter, however, being far inferior to the other brands for the Pneumatic process. Mr. Bessemer naturally inferred that he should be able to produce both cast steel and iron by his process alone, and it by no means detracts from his merits that he happened to overlook the fact that iron exposed in the melted state to the action of oxygen becomes, as it were, debased. Some persons term it "burnt iron," but I call it "oxygenated iron," and oxygenated iron can never of itself constitute a commercially valuable article. This oxygenation can be prevented when a metal is present whose affinity for oxygen is greater than the affinity of iron for oxygen, and it can be remedied when such a metal is subsequently added to the oxygenated iron. When Mr. Bessemer read his paper, I foresaw all the difficulties he would have to encounter from the oxygenation of the iron, and I knew that the remedy was simple and attainable, provided a suitable metal could be found at such a cost and in such quantities as would render its use practicable on the large scale. Out of several metals possessed of the requisite properties I selected the metal *Manganese as found abundantly in the Spiegel-Eisen or Spathose pig iron of Rhenish Prussia*, and combined therein with carbon and iron, the iron forming a convenient vehicle, by means of which I could introduce the metallic manganese into melted decarbonized cast iron treated by Mr. Bessemer's process. My first experiment was with some Bessemer metal prepared at the Victoria Ironworks from hematite pig iron. The experiment was made in small crucibles containing only a few ounces, the Bessemer metal being melted in one crucible and the Spiegel-Eisen in another, the melted contents of the crucibles were then mixed and a small ingot cast. This ingot was forged into a bar of excellent cast steel, which was doubled, welded, and made into a chisel, and was found for all practical purposes to be cast steel of fair average quality. I then extended the scale of my experiments, and operated with steel melting pots, each containing from 40 to 50lbs. of Bessemer metal, and melting the Spiegel-Eisen in smaller crucibles. The most complete success resulted from these experiments, and Mr. S. H. Blackwell having subsequently supplied me with a small blowing engine capable of maintaining a blast of 10lbs. pressure per square inch, I operated upon quantities of melted cast iron of from 500lbs. to 800lbs., and with a similar success, the Bessemer metal being wholly freed from unsoundness, red shortness, and other defects which had precluded its being forged or rolled into a marketable product. The British pig iron that I found best suited for the joint processes of Mr. Bessemer and myself were the Lancashire and Cumberland hematite iron, the Weardale Spathose iron, and the Forest of Dean pig iron; of foreign brands, the Indian charcoal pig and some manganese pig iron from Sweden gave the best results, though not so satisfactory as those obtained when hematite coke pig iron was employed. Much remains to be done to extend the use of the pneumatic or Bessemer process to the ordinary

brands of pig iron at present considered to be unfit for this purpose. I am, I believe, in possession of the requisite knowledge to accomplish all this, and I am only waiting the opportunity to do so whenever the Titan Steel Company, with whom I am associated, shall consider that the proper time has arrived for them to erect a suitable Bessemer apparatus at their works. The means are, I believe, as simple and efficacious as is the addition of Spiegel-Eisen, now universally employed by all Mr. Bessemer's licensees in England, and the resulting advantages will be proportionally great. In Sweden the Bessemer process has been carried out by operating upon certain brands of Swedish pig iron, containing a considerable alloy of metallic manganese. The result is that, with the subsequent addition of a little of the same manganese pig iron in lieu of Spiegel-Eisen, a workable steel is produced of moderate quality, but too seamy and unsound to be of much value for tools, and not nearly so tough and strong as the Bessemer steel made in this country from our own coke pig irons. I have recently experimented carefully upon this Swedish steel, and find it quite unsuited for the market, and most irregular in quality. It can never enter into competition with our English Bessemer steel. In treating melted cast iron by the pneumatic or Bessemer process, the simplest plan is to deprive the iron of the whole of its silicon and carbon. In this case the addition of a grain weight of Spiegel-Eisen, or of any similar metallic compound of iron and manganese containing carbon to a grain weight of decarbonized cast iron will insure results of tolerable uniformity as to the hardness or temper of the steel produced. The effect of adding Spiegel-Eisen to Bessemer metal is as follows:—The metallic manganese, by its superior affinity to oxygen, de-oxygenates the decarbonized metal, and renders it sound and free from red shortness. The carbon of the Spiegel-Eisen steelifies the mixture, and improves it when stiff or hard metal is required. The iron of the Spiegel-Eisen adds to the weight of the charge, and may therefore be considered as a gain to nearly the amount of its weight. The silicon which is found in Spiegel-Eisen has the effect of reducing the boiling or agitation of the pneumatised metal when poured into moulds, and is therefore beneficial, and it is not present to any injurious extent in Spiegel-Eisen. The hardness or temper of the Bessemer steel may be increased at pleasure by increasing the dose of Spiegel-Eisen. When Spiegel-Eisen is added to Bessemer metal containing sulphur and the pneumatic blast is turned on so as to eliminate the carbon and manganese of the Spiegel-Eisen, a portion of the sulphur of the pneumatised iron is carried off by the manganese, and thus by repeated additions of Spiegel-Eisen and subsequent elimination of its manganese, pneumatised cast iron may be wholly desulphurized. In a similar manner Bessemer metal containing phosphorus may be de-phosphorized by employing *Titanic* pig-iron in repeated doses to eliminate the phosphorus, and when both sulphur and phosphorus are present, both may be eliminated by repeated additions of Spiegel-Eisen and *Titanic* pig-iron, the Pneumatic blast being turned on after each such addition made to the cast iron. The Pneumatic process of Mr. Bessemer, in conjunction with my Spiegel-Eisen process, is producing a revolution in the engineering world, and in all the departments of art dependent upon engineering, to an extent almost incredible, and the magnitude of its ultimate effects, it is impossible fully to foresee or calculate upon. Mr. Bessemer's name will be remembered in connection with this, the greatest metallurgical invention the world has ever seen, and I venture to hope that I may not be wholly forgotten as having supplied the link which was wanting to render Mr. Bessemer's process what it now is. As I had had much experience in matters relating to the steel manufacture, it was not surprising that I should at once have been able to devise the remedy for the single defect which marred the success of the Pneumatic process at the outset.

Mr. BESSEMER said that manganese had been in ordinary use by steel manufacturers long before the date of Mr. Mushet's patent, who had thought proper to take out no less than ten patents for the purpose of debaring the speaker from using manganese in the manufacture of steel by his process. He had disregarded them, and had ever since continued to employ manganese in his process of manufacture. By the mechanical improvement he had introduced into the manufacture, he was enabled to deal with 25 tons of molten incandescent metal at one operation, whereas by the old method only 40 pounds could be dealt with at once, whilst at the same time the price of manufactured steel had been reduced from £36 to £13. Steel was capable of being applied to all purposes for which wrought iron was used, and although

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the first outlay was greater, the greater durability of the former made it far cheaper than the latter in the long run. The metal was rendered entirely homogeneous by being stirred up when in a molten state by a vertical revolving shaft, fitted with vanes like a screw propeller. As an illustration of the durability of steel rails on railways, he might instance a bar which had been laid down at the Camden Station, which proved to be 19 times more lasting than iron. The rail was then sent to Sheffield, where, at a cost of two pounds per ton, it was converted by rolling into steel rods, worth £18 per ton. The metal was also useful for the manufacture of railway tires without welds, which were a great source of weakness in wrought iron tires; and also for making the cranks of locomotives and various engines.

Description of a newly-invented System of Ordnance, by Mr. W. D. Gainsford.

Description of an Invention for Locomotive Adhesion, by Mr. W. D. Gainsford.

MISCELLANEA.

A very pretty little book called "Literary Pearls Strung at Random," is lying on our table. The profits from its sale will be devoted to the Hawaiian Mission. But the noteworthy point is a preface by the Bishop of Oxford, which might easily have come from the pen of Dr. Johnson. "Here wit sparkles for those who delight in its coruscations; here history opens its stores; here biography presents before you in court dress and dishabille, in serious and in sportive humour, companions whom you may be right glad to join, either to learn what is solid and useful, or to smile at what is innocently gay."

WHEN preachers talk twaddle about the worthlessness of money in their sermons, we pardon them in consideration of their necessities. But there is no such excuse for Dr. Goulburn. In his preface to a "Critical and Practical Commentary" upon the Acts of the Deacons, he boasts to have *consciously* borrowed from Dr. Vaughan some "practical reflections on the powerlessness of money to confer happiness." Let us hear these—"Money obviously cannot purchase anything which enters even into the lower life of man. It cannot purchase beauty; it cannot purchase talent for its possessor, though it may put these things at his command; it cannot purchase health; it cannot procure an hour's extension of our span of life." It would be difficult to crowd a greater number of falsehoods into the same number of lines. Money does procure beauty, talent, health, and long life. Beauty results from good living, and good air, as much as from natural conformation, though it may occasionally be found independent of these. Talent is as often the result of good education; whilst the late cholera experience might have taught the most unreflecting sermonizer that health and life often depend immediately on the amount of a man's income.

A THING called the Christian Moral Science Association has just been founded. One of its founders explains that, as the British Association is to natural or physical science, and as the Social Science Association is to social, legal, and economic reform, so is the Moral Science Association to all that is essential and practical in religion.

THE Social Science Congress, was formally wound up on Wednesday last. The Association will hold its meeting next year at Belfast.

THE *Athenaeum*, in a review last week upon Sir S. B. Ellis, professes to be unable to discover the date of his birth, whereas the critic might have found, from so common a book as "Men of the Time," that Sir Samuel was born in 1787. Our contemporary also talks of Trafalgar and the Dardanelles as "Names which refer to great events." Perhaps the critique was written by the gallant Colonel who is represented in a popular song as "Slightly alluding to the Rifle Volunteers."

IN the National Association for the Promotion of Social Science has not yet arrived at the dignity of a Parliament, Lord Shaftesbury has, at all events, been impressed with the necessity of opening it with something like a Royal Speech. The Noble Lord was never so cautious in a public utterance before. Possibly the spectacle of Dr. Mary Walker, a young lady in full Bloomer costume, and who, as a local newspaper declares, "seemed well used to the platform," impressed him with the necessity of being philosophically catholic. The conversion of Lord Shaftesbury to common sense is the greatest achievement of the Association.

THE noble hall of Trinity College, Cambridge, has been thoroughly restored and decorated during

the long vacation, and was used for the first time on Tuesday last. Probably most of our readers will remember that it is a late Tudor structure, very nearly the size of the Middle Temple Hall (its dimensions being 102 feet long, 30 broad, and 56 high), being built in the reign of Queen Elizabeth. Formerly it had rather a chilly and poverty-stricken look, hardly worthy of the great society to which it belonged; its magnificent proportions and really fine detail can now be properly appreciated. The panels in the roof have been coloured a delicate violet blue; the beams and other wood work have been relieved by a judicious use of occasional gilding and color, red predominating; the renaissance scroll-work on the pilasters of the paneling round the Hall has been gilt, and the ornamentation of the screen has been treated in like manner; the windows are bordered with a light decorative pattern, and the walls coloured pale buff. Fourteen handsome brass "cornices," arranged in two rows and suspended from the roof, light the Hall. The lantern has also been repaired and decorated, so as to harmonize well with the roof. We think that the Fellows of Trinity have every reason to congratulate themselves on the result of their work, when the lapse of a few months has slightly toned down the brilliancy of the gilding and colours, there will (we think) be little left to desire. A slab, with an inscription, has been placed over the grave of the late Master.

THE following gentlemen have been elected to Exhibitions attached to their respective schools, at St. John's College, Cambridge:—Stallard, Turner, Hereford School; Colby, Bridges, Manchester School; Norris, Grantham School; Kilner, Bury School; Pate, Pocklington; Jones, Marlborough School; Chaytor, Durham School; Wood, Oakham School; Inman, Clarke, Sedbergh.

FELLOWS of Trinity College, elected October 10th:—A. Cockshott, 4th Wrangler, 1864; D. Gillespie, 10th Wrangler, 9th in 2nd class Classics, 1864; C. B. Davies, 24th Wrangler, 13th (Wachet) in 1st class Classics, 1864; A. R. Vardy, 12th Senior Optime, 16th (Wachet) in 1st class Classics, 2nd Chancellor's Medallist, 1864; F. H. Swainson, 6th in 1st class Classics, 1864; Hon. J. W. Shutt, Senior Wrangler, and 1st Smith's Prize, 1865; R. Whitelaw, 9th Senior Optime, Senior Classic, 1st Chancellor's Medal, 1865; Hill Taylor, 3rd Wrangler, 2nd Smith's Prize, 6th in 3rd class Classics, 1865.

THE election of a Professor of Moral Theology, Consistical Divinity, and Moral Theology, in the room of the late Rev. J. Grote, B.D., will take place on the 25th of October. A proposal to increase the stipend to £300 per annum will be shortly brought before the Senate.

THE New Union Society's building is nearly completed, and will open on Wednesday to members. It promises to be a very commodious and handsome structure.

SOME would-be wit, styling himself "Helionmane," has issued a little *brochure*, entitled "A Journey to the Sun." If the author had bethought himself of ridiculing, justly or otherwise, some of the recent theories respecting sun-spots, he might have given us a few minutes' laugh. Professor Hennessy's shower of meteoric stones, for example, in the hands of Swift or Voltaire, would have done good service. We merely mention the thing, should it ever find a reader, as destitute of all reasonable excuse for being printed.

DR. MARY WALKER is one of the most notable features of the Social Science Congress. She lectured on "Crinoline," and said, if it was necessary for women to dress so extravagantly, that men could not afford to marry them, they should adopt some profession or means of maintaining themselves. So long, too, as women thought it necessary to carry about such a weight of dry goods, they proportionately overworked themselves. Overdressing also caused the necessity of hiring servants, which many women could not afford; and consequently this extravagance of dress acted as a kind of prohibition against entering into the holy state of matrimony, for which women were designed, she supposed, by heaven. Only think what an amount of labour was involved in wearing such expensive crinolines. It was quite enough to tire any woman; she could not walk half-a-mile without being wearied, for she used all her strength in doing so. It was impossible to arrange long skirts in such a manner that it did not use up a woman's vitality to carry them. They might be suspended from the shoulder, and the exertion be somewhat lessened but not removed, for the weight acted upon the muscles of the shoulders, and produced a degree of exhaustion that was prejudicial to health.

SINCE the French have occupied Martinique

and Guadeloupe, the dog, the arn, and the frog have all disappeared. Dr. Guyon thinks a treatise might be written on the question of the influence of civilization on parrots and frogs.

SOME elegant translations of Goethe's Minor Poems have just been published by Mr. Pitman. We select two of the Roman Elegies, addressed in reality to Goethe's wife:—

When thou dost tell me that thou, as a child, to the men, my beloved,

Wast not pleasing, and thou wast by thy mother despised, Till thou wast older, and quietly didst unfold, I believe it.

Fain do I think of thee as a peculiar child. Form and colour alike, the bloom of the vine it is lacking, Yet when the berry is ripe, men and gods too it enchant.

"Why, my beloved, didst thou to the vineyard yesterday come not?

Long while waited I there, as I did promise, alone."

Sweetheart, I had been long there, but thy uncle I spied by good fortune

Near the sets; anxiously round, hither and thither he turned.

Sneaking hurried I off.—"Oh how did thy eyesight mislead thee!

That which drove thee away was but a scarecrow. The shape

Busily patched we together, made out of reeds and old garments,

Busily helped I thereat, for my own detriment apt.

Now has the old man's wish been fulfilled; the most mischievous bird it

Frightens away, that to-day garden and niece too would rob."

JUNIUS BRUTUS BOOTH kept the portrait of Washington in his drawing-room. No visitor was permitted to stand in presence of the picture with covered head. His admiration for republicanism was greatly due to the rivalry which soon sprung up between him and Kean, which ended in his permanent emigration to America. Before that he had achieved great success on the English stage, and Hazlitt had been compelled to acknowledge his supremacy in the character of "Lear." For thirty years he held the first position on the American stage. His religion is worth describing:—"All forms of religion and all temples of devotion were sacred to him, and in passing churches he never failed to bare his head reverently. He worshipped at many shrines; he admired the Koran, and in that volume many beautiful passages are underscored; days sacred to color, ore, and metals were religiously observed by him. In the synagogues he was known as a Jew, because he conversed with the rabbis and learned doctors, and joined their worship in the Hebraic tongue. He read the Talmud, and strictly observed many of its laws. Several fathers of the Roman Catholic Church recount pleasant hours spent with him in theological discourse, and aver that he was of their persuasion, by his knowledge of the mysteries of their faith."

THE harvest this year is somewhat below the average. Yet festivals are being held in many places to celebrate its gathering in. *The Guardian*, naturally enough, is "not surprised to hear there are differences of opinion as to the expediency of such celebrations."

THE reredos of Ely Cathedral, is undergoing a thorough decoration by Mr. Hudson, who has been previously engaged on the same work. On the first occasions, Mr. Hudson's labours were confined to the embellishment of the foliated portions, while now he is engaged upon the statuary. A series of beautiful carvings in the canopies of the choir-stalls are fast approaching completion. On the north side a number of New Testament illustrations, commencing with the birth of our Lord, and ending with His ascension, are complete, with one exception. These beautiful wood pictures are the work of M. Abellard, of Louvaine. The renovation of the Galilee entrance to the nave is progressing satisfactorily.

THE COUNCIL of the Institution of Civil Engineers have awarded the following Premiums for Papers read during the Session 1865-66:—1. A Telford Medal, and a Telford Premium, in Books, to Richard Price Williams, M. Inst. C.E., for his Paper "On the Maintenance and Renewal of Permanent Way."—2. A Telford Medal, and a Telford Premium, in Books, to John Grant, M. Inst. C.E., for his Paper "Experiments on the Strength of Cement, chiefly in reference to the Portland Cement used in the Southern Main Drainage Works."—3. A Telford Medal, and a Telford Premium, in Books, to Edwin Clark, M. Inst. C.E., for his Paper on "The Hydraulic Lift Graving Dock."—4. A Telford Medal to Sir Charles Tilton Bright, M.P., M. Inst. C.E., for his Paper on "The Telegraph to India, and its Extension to Australia and China."—5. A Telford Medal, and the Manby Premium, in Books,

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to Robert Manning, M. Inst. C.E., for his Paper "On the Results of a Series of Observations on the Flow of Water off the Ground in the Woodburn district, near Carrickfergus, Ireland; with Rain-gauge Registries in the same locality, for a period of twelve months, ending 30th June, 1865."—6. A Telford Premium, in Books, to William Humber, Asso. Inst. C.E., for his Paper "On the Design and Arrangement of Railway Stations, Repairing Shops, Engine Sheds, etc."—7. A Telford Premium, in Books, to George Rowdon Burnell, M. Inst. C.E., for his Paper "On the Water Supply of the City of Paris."—8. A Telford Premium, in Books, to William Ridley, for his Paper on "The Grand River Viaduct; Mauritius Railways."—9. A Telford Premium, in Books, to Theodore Anthony Rochussen, Assoc. Inst. C.E., for his Paper "On the Maintenance of the Rolling Stock on the Cologne-Minden, and other Prussian Railways."—10. A Telford Premium, in Books, to William Hemingway Mills, M. Inst. C.E., for his Paper on "The Craigellachie Viaduct."

On 1st October, price 3s. d., No. 2 of the

JOURNAL OF THE TRANSACTIONS OF THE VICTORIA INSTITUTE

or Philosophical Society of Great Britain, containing the following Papers and the discussions thereon:—On the Difference in Scope between Scripture and Science, by C. MOUNTFORD BURNETT, Esq., M.D., Vice-President, V.I. On Comparative Philology, by Rev. ROBINSON THORNTON, D.D., Head Master of Epsom College, M.V.I. On the Various Theories of Man's Past and Present Condition, by JAMES REDDIE, Esq., Hon. Sec. V.I. To the latter is appended a Note on the Discussion of the same Paper, in Section E of the British Association at Nottingham.

Also recently published, price 3s. 6d., No. 1 of the

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or Philosophical Society of Great Britain. Containing—An Account of the Preliminary and Inaugural Proceedings, Scientia Scientiarum, Inaugural Address, &c., &c.; also—A Sketch of the Existing Relations between Scripture and Science, by GEORGE WARINGTON, Esq., F.C.S., M.V.I., with Discussion thereon.

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Shortly.

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